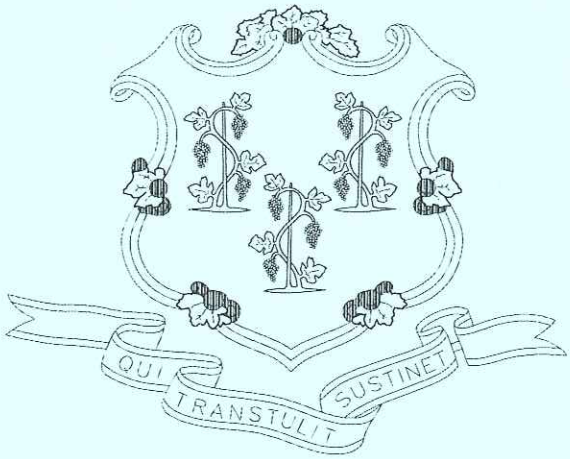
CONSULTANTS PROCEDURE MANUAL



Prepared by

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS

Approved by: Raeanne V. Curtis ***Date:*** 6/13/2008

Raeanne V. Curtis, Commissioner

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Note: Forms noted in the Consultant's Procedure Manual shall be referenced by form name and (where possible) form number. DPW is working on producing all forms on the DPW's web site. At this time forms are not available on the web site. The Consultant shall use the most current version of the form in/on their documents. If there is any question of what version is to be used, contact your DPW Project Manager.

0.0 INTRODUCTION TO DEPARTMENT OF PUBLIC WORKS (DPW)

0.0.1 Purpose of this Manual

This Consultant Procedure Manual is an information resource to any Consultant that does business with the State of Connecticut through the Department of Public Works Facilities Design and Construction. This manual includes information on how to obtain state work, what basic services consists of and what constitutes extra services for a consultant, administrative issues and technical requirements. The structure of DPW and how the various people interact with a project is also explained in the Consultant's Procedure Manual.

0.0.2 Department of Public Works Mission Statement

To be the leader in providing quality facilities and in delivering cost-effective, responsive, and timely services to state agencies in the areas of planning, design, construction, facilities management, leasing and real property disposition. With our diverse and competent workforce, to partner with our customers and industry providers to make the best use of the State's resources.

0.0.3 Organization of the Department of Public Works (DPW)

The Department of Public Works consists of units that cover Management and Planning, Facilities Management, Leasing Services, and Facilities Design and Construction.

0.0.3.1 Under **Management and Planning** the DPW oversees Asset Planning, as a Statewide Service for the full range of State-owned property – all building and lands, but excluding highways, airports, etc. This effort relates to space management and space utilization, capitol spending, planning deferred maintenance, land & building inventory and some environmental records. The goal is to maximize the use of and value of these assets.

0.0.3.2 Under **Facilities Management** the DPW provides office space, utilities and building services for most state agencies located in Hartford. DPW also, operates district (regional) offices at several locations and the Governor's residence. DPW Facilities Management takes temporary custody and interim maintenance of the surplus properties being sold by the state.

0.0.3.3 **Leasing Services** is responsible for leasing and property acquisitions for most state agencies as well as facility management, maintenance and security of state buildings in the greater Hartford area. In addition DPW has certain properties outside of the Hartford area, and surplus property statewide. Leasing supports land sales and purchases with legal and negotiation support if requested.

0.0.3.4 Under **Facilities Design and Construction** the DPW has responsibility for the majority of the State's building construction- both new and renovation. This includes statewide service for early planning and budgeting and design oversight for minor and major projects. Design, bid, build is the most common delivery system. Design build is used for some major projects and we are venturing into the use of CM at Risk as well. DPW is responsible for the Building Code compliance process for non-threshold state construction projects. DPW has the primary state responsibility for hiring architects, engineers, construction administrators and construction contractors related to building and facility projects. DPW handles Energy Management as a Statewide Service, for all agencies and includes technical advice and oversight on energy projects and policy, in a joint effort with the Office of Policy and Management (OPM). This includes performance energy contracting, utilities joint savings project and Life Cycle Cost Analysis (LCCA) administration. DPW also provides Technical Resources, as a Statewide Service, for all state agencies related to buildings design and improvements; and the management of several statewide programs – such as all Underground tank replacements, ADA support, and Asbestos and Lead Removal.

Organization of Facilities Design and Construction

Facilities Design and Construction has been divided into four (4) teams that handle all Agency needs throughout the State. Each Team deals with a variety of Agencies to enable us to balance the work load equally among the teams.

0.0.3.5 One **Team** covers Agencies as follows: the Technical High School System, Department of Mental Health and Addiction Services (DMHAS), Department of Public Safety (DPS), Department of Social Services (DSS), Police Officers Standards Training Council (POST), and Department of Developmental Services (DDS)

0.0.3.6 Another **Team** covers the Connecticut State University System., Department of Public Works (DPW), Department of Environmental Protection (DEP), Department of Children and Families (DCF) and Board of Education and Services for the Blind (BESB)

0.0.3.7 Another **Team** covers Judicial, Department of Corrections (DOC), Military, Department of Veterans Affairs (DVA), American School for the Deaf (ASD), Connecticut Agricultural Experiment Station (CAES), Fire Schools, and Department of Information Technology (DOIT)

0.0.3.8 Another **Team** covers Community Technical Colleges (CTC), Department of Mental Health and Addiction Services (DEMHS), Department of Motor Vehicles (DMV), State Library, Department of Public Health (DPH), Department of Agriculture, and the Regional Market

0.0.3.9 Each Team has a number of individuals that have the necessary professional qualifications to comply with their Agencies requirements for their specific projects. A Team may consist of the following types of staff:

- Assistant Director of Project Management (ADPM) [Team Leader],
- Project Managers (PM's),
- Associate Project Manager (ASPM)
- Assistant Project Managers (APM)
- Secretarial support.

The ADPM's overview the Team to assure the Agencies needs and personnel issues are being met. The PM or ASPM is directly responsible for the project, and is typically the main contact with the Agency and the Consultant on a day to day basis. The APM's are the project support staff that have professional expertise in construction, codes, mechanical, electrical, or other expertise that can compliment the PM or ASPM in overview of specific projects.

0.0.4 DPW SUPPORT:

The structure of the Department of Public Works also includes different support groups that include: hazardous materials (Asbestos, Lead), Construction, Architectural, Engineering, Risk Management, Affirmative Action, Property Disposal & Acquisition, Facilities Management, Energy, Environmental, Code Services, Underground tanks and Claim management. These groups lend support to the Teams and are called on when necessary for specific projects.

0.0.5 Authority of the Department of Public Works

The Department of Public Works through its Facilities Design and Construction unit is responsible for most new building and capital improvements to State property and buildings. The authority of the Department of Public Works is defined under Section 4b-1 of the Connecticut General Statutes (CGS) which states that the responsibility resides with the Commissioner of Public Works and his delegates.

0.1 Terms and Definitions

ACCEPTANCE OF THE WORK: The Owner's issuance of a Certificate of Acceptance to the Contractor in accordance with CGS § 4-61(b) (2), as amended. The Certificate of Acceptance shall designate the Owner's and Contractor's responsibilities for completion of all incomplete Work as required by the Agreement.

Addendum: A document prepared by the Consultant that modifies the plans and/or specifications after a project is put out to bid but before the bids are received.

ADDITIONAL OR DELETED WORK: Work required by the Department that, in the judgment of the Commissioner, involves any addition to, deduction from, or modification of the Work required by the Contract Documents.

Affidavit: A statement of facts which is sworn to (or affirmed) before an officer who has authority to administer an oath (e.g. a notary public). The person making the signed statement takes an oath that the contents are, to the best of their knowledge, true. It is also signed by a notary or some other judicial officer that can administer oaths, affirming that the person signing the affidavit was under oath when doing so.

AGENCY: The (User) Agency of the State of Connecticut having administrative authority of the facility in which the Work is being performed.

Amendment: A revision to a contract between a consultant and the state with a value over $100,000. Serves as a change to modify a fixed fee contract.

APPLICATION FOR PAYMENT, PARTIAL PAYMENT OR REQUISITION: Contractor's certified request for payment for completed portions of the Work and, if the Contract so provides, for materials or equipment suitably stored pending their incorporation into the Work.

ARCHITECT OR ENGINEER (or Consultant): A sole proprietor, partnership, firm, corporation or other business organization under contract with the Owner, commissioned to prepare Con-tract Drawings and specifications, to advise the Owner and in certain cases, to perform regular inspections during construction and when authorized to perform the duties of the Construction Administrator.

AS-BUILT DRAWINGS: Construction Drawings revised by the Contractor to show all significant Modifications made during the construction process.

Attorney General's Office: A Constitutional Office of the Executive Branch of Government of the State of Connecticut having statutory authority for reviewing and approving as to form, all contracts issued by the various State Agencies.

BASE BID: Monetary value stated in the Bid Proposal form as the sum for which the bidder offers to perform the Work described in the Bidding Documents, exclusive of adjustments for Supplemental Bids.

BID BOND: Form of bid security executed by the Bidder as Principal and by a Surety to guarantee that the Bidder will enter into a Contract within a specified time and furnish any required bond as mandated by CCS § 4b-92.

BIDDER: A sole proprietor, partnership, firm, corporation, or other business organization submitting a Bid on the Bid Proposal Form for the Work contemplated.

BIDDING DOCUMENTS: Collectively, the Bidding Requirements and the proposed Contract Documents, including any addenda issued prior to receipt of Bids.

BID OR BID PROPOSAL FORM: A complete and duly signed proposal to perform Work (or a designated portion thereof) for a stipulated sum submitted in accordance with the Bidding Documents.

BID SECURITY: Certified check or Bid Bond submitted with Bid Proposal Form, which provides that the Bidder, if awarded the Contract, will execute such Contract in accordance with the requirements of the Bidding Documents.

Bond Commission: A sub-unit of the Executive Branch of Government of the State of Connecticut having statutory authority for reviewing and approving all requests for bonding of funds by all State Agencies. Currently the Bond Commission is constrained by both a fiscal year and a calendar year cap on spending.

Building Permit: A document issued by the Department of Public Safety's Office of the State Building Inspector permitting construction of buildings and/or structures that exceed certain thresholds defined in the Connecticut General Statutes.

BUILDER'S RISK INSURANCE: A specialized form of property insurance which provides coverage for loss or damage to the Work pursuant to the Contract Documents.

CASH ALLOWANCE: An amount established in the Contract Documents for inclusion in the Contract Sum to cover the cost of prescribed items not specified in detail, and as shown in the Allowance Schedule.

CERTIFICATE OF ACCEPTANCE: (DPW form #782) A document issued by the Owner to the Contractor stating that all Work specified in the Certificate of Acceptance has been completed and accepted by the Owner.

Certificate of Completion: (DPW form #780) This form is no longer used.

CERTIFICATE OF COMPLIANCE: A document stating that for the portion of the project completed, either the design portion or the construction portion has been performed in substantial compliance with all applicable building codes. (This document is used in lieu of the Certificate of Occupancy used by the State Building Inspector [SBI])

CERTIFICATE OF FUNCTIONAL COMPLETION: A document issued by the Owner to the Contractor stating that all remaining TAB and commissioning responsibilities of the contractor and subcontractors are complete.

CERTIFICATE OF OCCUPANCY: Document issued by the authority having jurisdiction certifying that all or a designated portion of a building is approved for its designated use. (Only issued when the authority having jurisdiction is SBI, DPW issues the Certificate of Compliance)

CERTIFICATE OF SUBSTANTIAL COMPLETION: A document prepared by the Architect and approved by the Owner on the basis of an inspection stating:

- that the Work, or a designated portion thereof, is determined to be Substantially Complete;
- the date of Substantial Completion;
- the responsibilities of the Owner and the Contractor for security maintenance, heat, utilities, damage to the Work and insurance; and
- the time within which the Contractor shall complete the remaining work.

CHANGE ORDER: (DPW form #737) Written authorization signed by the Owner, authorizing a modification in the Work, an adjustment in the Contract Sum, or an adjustment in the Con-tract Time.

COMMISSIONER: The State of Connecticut, Department of Public Works (DPW) Commissioner acting directly or through specifically authorized DPW personnel or agent(s) having authority to perform duties defined in Article 2**6**.

Commission Letter: A revision to a contract between a consultant and the state with a value under $100,000. . Serves as a change to modify a fixed fee contract. Can also be used to extend the period of time stated in an on-call contract.

COMMISSIONING (CX): Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the owner's operational needs. This is achieved by beginning in the design phase and documenting design intent and continuing through construction, acceptance, and the warranty period with actual verification of performance. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing and training. Commissioning during the construction phase is intended to achieve the specific objectives as described in the Contract Documents.

COMMISSIONING PLAN (CX PLAN): The Commissioning Plan is provided as part of the bid documents and is binding on the Contractor. The commissioning plan provides the structure, schedule, and coordination planning for the commissioning process. After the initial commissioning coordination meeting with the Contractor, Subcontractors, Construction Administrator, and A/E the Commissioning Authority (CxA) will update the plan which is then considered the "Final" commissioning plan. The Final Commissioning Plan is binding on the General Contractor. The Project Manual shall take precedence over the Commissioning Plan.

COMMISSIONING AUTHORITY (CxA): The CxA is an independent agent, not otherwise associated with the Contractor and is hired by the Owner. The CxA directs and coordinates the day-to-day commissioning activities. The CxA does not take an oversight role like the CA. The CxA is part of the Construction Administrator's (CA) team and shall reports directly to the CA. The Owner's CxA issues the Certificate of Functional Completion.

CONNECTICUT STATE UNIVERSITY SYSTEM 2020 (CSUS 2020) PROJECT: A project authorized in accordance with the "The Connecticut State University System Infrastructure Act".

CONSTRUCTION ADMINISTRATOR: A sole proprietor, partnership, firm, corporation or other business organization, under contract or employed by the Owner commissioned and/or authorized to oversee the fulfillment of all requirements of the Contract Documents. The authorized Construction Administrator may be a Department of Public Works Assistant Project Manager, Department of Public Works Project Manager, Department of Public Works Associate Project Manager, a Clerk of the Works, an Architect, a Consulting Architect, a Consulting Construction Administrator, a Consulting Engineer etc. or any other designee as authorized and identified by the Owner.

CONSTRUCTION CHANGE DIRECTIVE: A written authorization signed by the Owner, directing a modification in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, Contract Time or both. Any Construction Change Directive resulting adjustment of the Contract sum or Contract time shall result in a Change Order.

Construction Manager at Risk - Guaranteed Maximum Price (CMR-GMP): Means a project delivery system where a construction manager provides both construction management and general contractor services for the project. These services are provided to DPW based on a guaranteed maximum price, fixed price, or other means defined in a contract.

CONSTRUCTION START DATE OR DATE OF COMMENCEMENT OF THE WORK: The date, specified by the Owner in the Notice to Proceed, on which the Contractor is required to start the Work.

CONTRACT DOCUMENTS OR CONTRACT (construction phase): The Agreement between Owner and Contractor, Conditions of the Contract (General Conditions, Supplementary Conditions, General Requirements, and other Conditions), Drawings, Specifications, and Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract, all of which shall constitute the Contract.

Contract (Consultant's): An agreement between a Consultant and the State for services. The agreement will describe the scope of services typically in an "exhibit A" and the contract will note fees, time frames, and deliverables involved.

Contract (on-call): A Contract between a Consultant and the State, that states a maximum fee amount, a duration of a specific number of years, and describes the types of services that the consultant may be asked to provide. However, the specific project, exact scope of work and corresponding fee will be identified subsequently in a series of "Task Letters".

CONTRACTOR OR GENERAL CONTRACTOR: A sole proprietor, partnership, firm or Corporation, under direct contract with the Department of Public Works, responsible for performing the Work under the Contract Documents. Whenever the words "Contractor" or "General Contractor" are used it shall be understood to mean Contractor.

CONTRACTOR'S LIABILITY INSURANCE: Insurance purchased and maintained by the Contractor that insures the Contractor for claims for property damage, bodily injury, or death.

CONTRACT SUM: The sum stated in the Contract, which is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

CONTRACT TIME: The period of time allotted in the Contract Documents for Substantial Completion of the Work, including authorized adjustments thereto. The days specified, calendar days~~,~~ are stipulated in the Bidding Documents.

DAY: Whenever the word Day is used it shall be understood to mean calendar day stated on the Bidding Documents, unless stated otherwise.

DEPARTMENT OF PUBLIC WORKS PROJECT MANAGER or PROJECT MANAGER: The individual employed by the Owner, designated, and authorized by the Commissioner, to be responsible for the overall management and oversight of the Project, and to represent the (User) Agency.

Design-Bid-Build (D-B-B): Means a project delivery system in which DPW sequentially awards separate contracts, the first for architectural and engineering services to design the project and the second for construction of the project in accordance with the design.

Design-Build (D-B): Means a project delivery system in which DPW enters into a single D/B Contract with a Proposer for the design and construction of an infrastructure facility on a total cost basis in accordance with CSG § 4b-24 (4).

EQUAL (S):: A replacement for the specified material, device, procedure, equipment, etc., which has been determined by the Architect and the Owner to be substantially identical to the first listed manufacturer or first listed procedure specified in terms of cost, quality and performance for the Project. The Equal does not constitute a modification in the scope of Work, the Schedule, or Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

FINAL INSPECTION: Review of the Work by the Architect and Owner to determine whether Acceptance has been achieved.

FINAL PAYMENT: The last payment made by the Owner to the Contractor, made after notice of the Acceptance. Payment shall include the entire unpaid balance of the Contract Sum as adjusted by Modifications.

Fixed Fee Contracts: A contract between a consultant and the state, stating a fixed fee for a specific scope of work related to a specific project.

Fixture, Furniture and Equipment (FF&E): Movable furniture and panels and interior design shall be negotiated to be provided by the consultant **OR** provided by the Agency under the Equipment budget line item.

FUNCTIONAL COMPLETION: Functional Completion is when all remaining TAB and commissioning responsibilities of the contractor and subcontractor's (except for seasonal or approved deferred testing and controls training), have been certified as complete by the Owner's Commissioning Authority (CxA) and the Certificate of Functional Completion has been issued.

GENERAL CONDITIONS: The General Conditions of the Contract for Construction, part of Division 00 of the Specifications.

GENERAL REQUIREMENTS: That part of the Contract Documents entitled General Requirements, which is Division 01 of the Specifications.

GUARANTEE: See Warrantee.

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED) GREEN BUILDING RATING SYSTEM™: LEED is a third party certification program and the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED provides tools immediately measure the buildings' performance. LEED is a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

LIQUIDATED DAMAGES: A sum established in a Contract, usually as a fixed sum per calendar day, as the predetermined measure of damages to be paid to the Owner due to the Contractor's failure to complete the Work as stipulated in this Contract.

LUMP SUM: An item or category priced as a whole rather than broken down into its elements.

Minor Changes in the Work: Changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents, which shall be affected by written order issued by the Architect.

Modification or Amendment: 1.) A written change to the Contract Documents. 2.) A Change Order. 3.) A Construction Change Directive. 4.) Supplemental Instructions for minor changes in the Work and/or additional instructions to the Work.

MOBILE SOURCE: A source designed or constructed to move from one location to another during normal operation except portable equipment and includes, but is not limited to, automobiles, buses, trucks, tractors, earth moving equipment, hoists, cranes, aircraft, locomotives operating on rails, vessels for transportation on water, lawnmowers, and other small home appliances.

NOTICE TO BIDDER: A notice contained in the Bidding Document informing prospective Bidders of the opportunity to submit Bids on a Project.

NOTICE TO PROCEED: Written notice, issued by the Commissioner or the Commissioner's authorized representative, to the Contractor authorizing the Contractor to proceed with the Work and establishing the date for commencement of the Contract Time.

OWNER OR DEPARTMENT: The State of Connecticut, Department of Public Works acting through its Commissioner or specifically authorized Department personnel or agent.

OVERHEAD: Indirect costs include~~ings~~s but is not limited to: supervision (any position over the foreman), field, and home office expense, insurance, and small tools and consumables are automatically calculated by the DPW change Order process and added to the value of the actual work of the Change Order.
Note: DPW's Change Order process does not recognize a contractor or subcontractor overhead (indirect cost) costs since DPW gives a generous, overhead and profit percentage based upon the actual value of the work that is automatically calculated in the "Change Order Workbook (DPW form #735F)" and added to the actual cost of the Work of the Change Order.

PAYMENT BOND, LABOR BOND OR MATERIAL BOND: A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Contractor will pay for labor and materials furnished for use in the performance of the Contract, as required by CGS § 49-41.

PERFORMANCE BOND OR SURETY BOND: A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Work will be performed in accordance with the Contract Documents, as required by CGS § 49-41.

PERFORMANCE SPECIFICATION: A description of the desired results or performance of a product, material, assembly, procedure, or a piece of equipment with criteria for identifying the standard.

PLANS OR DRAWINGS: All drawings or reproductions of drawings pertaining to the construction of the Work contemplated and its appurtenances.

Project: 1) For Design-Bid-Build and Construction Management-At-Risk Guaranteed Maximum Price (CMR-GMP) delivery systems: The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors. 2) For Design-Build delivery systems: The Project is the total design and construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

PROJECT MANUAL: The set of documents assembled for the Work which includes, but is not limited to, Contract Documents, Bidding Requirements, Sample Forms, General Conditions of the Contract, General Requirements, and the Specifications.

PROPRIETARY SPECIFICATION: A specification that describes a product, procedure, function, material, assembly, or piece of equipment by trade name and/or by naming the manufacturer(s) or manufacturer's procedure, exact model number, item, etc., of those products acceptable to the Owner.

Record Documents or As-built Drawings: Construction Drawings revised to show all significant Modifications made during the construction process.

Reproducible Bid Documents: Means the final reproducible drawings, specifications and other documents including those in electronic form, prepared, signed, sealed, and dated by the Architect and the Architect's consultants used to invite the submittal of bids for a specific project.

RETAINAGE: A percentage of each Application for Payment and a percentage of the total contract sum retained by the Owner.

SBI: State Building Inspector

SCHEDULE: A Critical Path Method (CPM) or Construction Schedule as required by the Contract Documents which shall be a diagram, graph or other pictorial or written schedule showing all events expected to occur and operations to be performed and indicating the contract time, start dates, durations and finish dates as well as to Substantial Completion and Acceptance of the Work, rendered in a form permitting determination of the optimum sequence and duration of each operation.

SCHEDULE OF VALUES: A document furnished by the Contractor to the Architect and Owner stating the portions of the Contract Sum allocated to the various portions of the Work, which is to be used for reviewing the Contractor's Applications for Payment.

SECONDARY SUBCONTRACTOR: A sole proprietor, partnership, firm or Corporation under direct contract with the Subcontractor to the General Contractor.

SENSITIVE RECEPTOR SITES: Areas where concentrations of diesel emissions may be harmful to sensitive populations, including, but not limited to, hospitals, school and university buildings being occupied during a student semester, residential structures, daycare facilities, elderly housing, and convalescent facilities.

SHOP DRAWINGS: Drawings provided to Architect and Owner by a Contractor that illustrate construction, materials, dimensions, installation, and other pertinent information for the incorporation of an element or item into the construction as detailed Contract Documents.

SPECIFICATIONS: The description, provisions and other requirements pertaining to the method and manner of performing the Work and/or to the quantities and quality of materials to be furnished under the Contract.

Square Feet - Gross (GSF): This data element represents the sum of all floor areas within the environmentally controlled envelope of a building. It includes the walls and vertical circulation space. The measurement is computed by measuring the area to the outside faces of permanent exterior walls of a building without any deductions. All enclosed floors of the building, including basements, garages, mechanical equipment floor, penthouses, and the like, are calculated. Does not include any covered unenclosed areas except in the case of a parking structure.

Square Feet – Net (NSF): This data element represents the sum of total square footage of the floor area within a building regardless of occupants or use. The measurement is computed by measuring the floor area enclosed between the inside face of the permanent exterior walls without any deductions.

Square Feet – Net Assignable (NASF): This data element represents the sum of total square footage within a building that is available for assignment to an occupant. Net Assignable Square Feet is measured from the inside faces of walls of a room or space.

State Properties Review Board: A regulatory agency that reviews and approves all leases and contracts prepare by the Department of Public Works in accordance with the Connecticut General Statutes.

Sub-consultant: A person, partnership, corporation or other business organization under direct contract with the Consultant.

SUBCONTRACTOR: A sole proprietor, partnership, corporation or other business organization under direct contract with the Contractor supplying labor and/or materials for the Work at the site of the Project.

SUBMITTALS: Documents including, but not limited to, samples, manufacturer's data, shop drawing, or other such items submitted to the Owner and Architect by the Contractor for the purpose of approval or other action, as required by the Contract Documents.

SUBSTANTIAL COMPLETION: The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

SUBSTITUTION: A material, device, procedure, equipment, etc., which has been determined by the Architect and the Owner to be not an Equal to the first manufacturer or procedure listed in the Specification in terms of cost, quality and performance but which may be used in place of that item specified. The Substitution constitutes a modification in the Work, the Schedule or the Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

SUPERINTENDENT: The Contractor's representative at the site who is responsible for continuous field supervision, coordination, completion, completion of the work, and, unless another person is designated in writing by the contractor to the owner and the construction administrator, for the prevention of accidents.

SUPPLEMENTAL BID: The monetary value stated in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

SUPPLEMENTARY CONDITIONS: An extension of the General Conditions applicable to any and all portions of Work under the Contract Documents.

(TAB) Test, Adjusting & Balancing: TAB is a systematic process or service applied to heating, ventilating and air-conditioning (HVAC) systems and other environmental systems to achieve and document air and hydronic flow rates. The standards and procedures for providing these services are referred to as *"Testing*, *Adjusting, and Balancing".*

Task Letters: An amendment to an on-call contract between a consultant and the state, that identifies the project, describes the scope of work to be performed by the consultant, states the fee agreed upon by the State and the consultant, and the time period for completion of the work and the deliverables.

THRESHOLD LIMIT BUILDING: Any proposed (new) structures or additions as defined by the CGS § 29-276b.

Time and Material (T&M): This stands for Time and Material, it is a device used by a CA to measure the time and extent of materials used for a specific task. Most often used when an agreement for added work can not be negotiated based on an agreed lump sum unit cost.

UNIT PRICE: The monetary value stated by the Owner or the Contractor, as a price per unit of measurement for materials or services as described in the Contract Documents and/or Bidding Documents.

WORK: The construction and services required by the Contract Documents, and including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

WARRANTEE: A written, legally enforceable assurance of specified quality or performance of a product or work or of the duration of satisfactory performance.

0.2 CONSULTANT SELECTION

The following information is extracted from the "Selection Proposal and Bidding Manual " (DPW 10M). It is an overview of the process for the various types of DPW Selections Proposals and Bidding.

1.0 General Requirements

1.1 Overview

The State of Connecticut Department of Public Works (DPW) has developed the selection, proposals, and bidding procedures in this Manual to aid DPW and the public in understanding how contracts are awarded on an impartial, equitable, and rational basis. The procedures are intended to insure the integrity of all selection and bidding procedures and to define the duties and responsibilities of the various participants. In some instances, the procedures may be stricter than the legislation requires. Deliberate manipulation of contracts to avoid compliance or deviation from these procedures is not allowed.

1.2 Selection, Proposals, And Bidding Procedures

Within the various project delivery systems are several different types of Selection Procedures that can be utilized for soliciting and evaluating Consultant Qualifications, Proposals, and Bids for procurement of services and construction of the projects.

The following are the Selection, and Bidding Procedures available for use for the award of all DPW Consultant Service Contracts, Design-Build Contracts, and Construction Contracts:

1.2.1 Architectural and Engineering (A&E) Consultant Services Selection – CGS §4b-55 through 4b-61:

Architectural and Engineering (A&E) Consultant Services Selection:

- This Selection procedure is a Two (2) step Qualifications Based Selection. Step 1 is to Shortlist qualified Consultants, and Step 2 is the Selection the Consultant with highest qualifications for the Project.
- This Selection procedure **must** be utilized to select and contract for Architectural and Engineering Consultant Services for projects for any state program requiring consultant services if the cost of such services is estimated to **exceed** Three Hundred Thousand dollars ($300,000).
- This Selection procedure **may** be utilized to select and contract for Architectural and Engineering Consultant Services for projects for any state program requiring consultant services if the cost of such services is estimated to **not to exceed** Three Hundred Thousand dollars ($300,000).

1.2.2 On-Call Consultant Service Selection and On-Call Contract Task Assignments - CGS § 4b-51, 4b-56, and 4b-57:

On-Call (OC) Consultant Services Contract Selection and On-Call (OC) Contract Task Assignments:

- This Selection procedure is a Two (2) Step Qualifications Based Selection. Step 1 is to Shortlist qualified Consultants, and Step 2 is the Selection of Consultants with highest qualifications for the Consultant Services Contract.
- This Selection procedure is used to select and contract with Consultants to be paced on the DPW On-Call Consultant Services Contract List. According the CGS 4b-55 a project means any state program requiring consultant services if the cost of such services is estimated **not to exceed** Three Hundred Thousand dollars ($300,000).
- OC Contract Task Assignments are sequentially assigned from the DPW On-Call Consultant Services Contract List. All individual On-Call Tasks Assignments for all Consultant Service Contracts shall **not exceed** Three Hundred Thousand dollars ($300,000).

1.2.3 Competitive Sealed Proposal For Design-Build (D-B) - CGS § 4b-24(4):

For Competitive Sealed Proposal for D-B Projects:

- Competitive Sealed Proposal for D-B Projects is a two (2) Step Selection Procedure, Step 1 is comprised of a Qualifications Based **D-B Shortlist Screening Procedure** and Step 2 is a **Step 2: D-B Competitive Sealed Proposal Procedure** where a Design-Builder with the **"Best Value"** Proposal is selected to design and build the Facility.
- It is utilized for projects that are designated by the Commissioner to be accomplished on a **"Total Cost Basis"** with a single contract with a Design-Builder which may include such project elements as site acquisition, architectural design, and construction.

1.2.4 Competitive Sealed Proposal For Construction Management-At-Risk (CMR) - Guaranteed Maximum Price (GMP) - CGS § 4b-103:

For Competitive Sealed Proposal For CMR - GMP Projects:

- Utilized for projects where the Commissioner of Public Works enters into a construction manager at-risk project delivery contract for a maximum guaranteed price for the cost of construction.
- Each construction manager at-risk shall invite bids and give notice of opportunities to bid on project elements, by advertising, at least once, in one or more newspapers having general circulation in the state.
- Each bid shall be kept sealed until opened publicly at the time and place as set forth in the notice soliciting such bid.
- The construction manager at-risk shall, after consultation with and approval by the commissioner, award any related contracts for project elements to the responsible qualified contractor submitting the lowest bid in compliance with the bid requirements.

1.2.5 Competitive Sealed Bid For Large Projects (AKA Formal Bid) - CGS §4b-91 Through 4b-95:

For Lowest Responsible And Qualified Bidder Determination:

- Anticipated construction is estimated to cost more than $500,000.

1.2.6 Competitive Sealed Bid for Small Projects (AKA Informal Bid) - CGS §4b-91 through 4b-95:

For Lowest Responsible And Qualified Bidder Determination:

- Anticipated construction is estimated to cost $500,000 or less.

1.2.7 Emergency Procurement - CGS §4b-52(c):

For Emergency Projects:

Whenever the Commissioner of Public Works declares that an emergency condition exists at any state facility under the supervision and control of Public Works. The commissioner's declaration shall be based upon the following conditions:

- Exceed $500,000 then the Governor's written consent is required.
- Less than $500,000 then a DPW written consent from the DPW Commissioner is required.

1.3 Project Delivery Methods

The choice of the appropriate "Project Delivery Method" for a Project is of prime importance because it enables DPW to achieve project goals such as innovation, quality, schedule, performance, cost conformance, and sustainability.

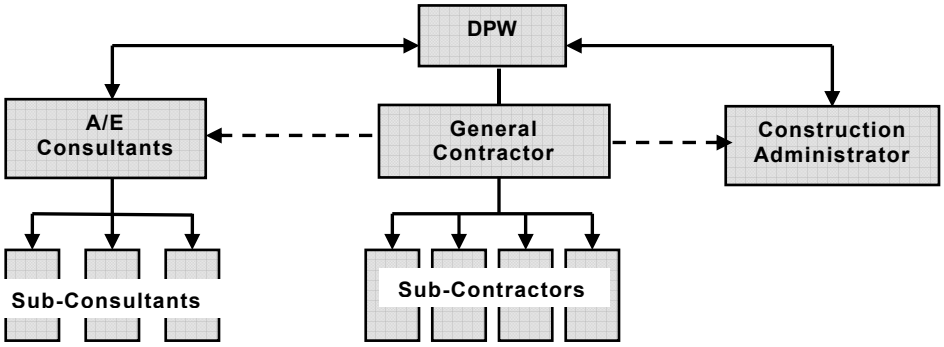
The following is a summary of the all the "Project Delivery Methods" available to DPW for the construction of all infrastructure projects.

1.3.1 Design-Bid-Build (D-B-B) Projects Delivery Method:

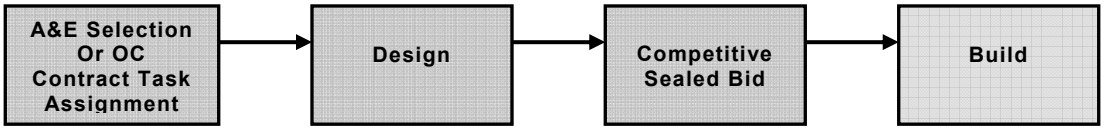
This is the traditional Project Delivery Method that is utilized to deliver approximately 90% of all DPW projects.

Design-Bid-Build (D-B-B):
• Architects/engineers and professional consulting contract services are selected through the applicable **A&E Consultant Services Selection** (AKA Formal Consultant Selection), or a **OC Contract Task Assignment** and a Contract or Task Assignment is awarded to develop design and construction documents that meet the goals, scope, and budget of the Project. A Construction Administrator can be selected through the same procedures to represent the DPW during Construction.
• Based on the completed construction documents, a general contractor is selected through the applicable **Competitive Sealed Bid For Large Projects** (AKA Formal Bid) or **Competitive Sealed Bid For Small Projects** (AKA Informal Bid) where the responsible general contractor with the lowest qualified bid (cost) is awarded the contract to build the project.

Organization:



D-B-B Delivery Method Sequence:



1.3.2 Design-Build (D-B) Project Delivery Method:

This Project Delivery Method is used to deliver less than approximately 5% of DPW projects. It can only be utilized when it meets the following feasibility criteria and the DPW Commissioner designates it a **Total Cost Basis D-B Project.**

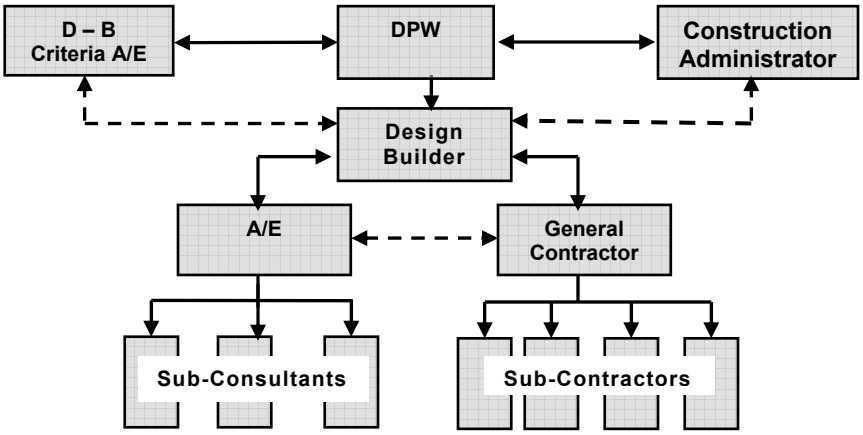
.1 D-B Project Delivery Method Feasibility Criteria The following are the six (6) types of feasibility criteria for a D/B Project:

D-B Project Delivery Method Feasibility Criteria	
1.0	The project has a clearly defined scope, design basis, and performance requirements;
2.0	The project is free from complicated issues such as utility conflicts, right-of-way acquisition, hazardous materials, wetland and environmental concerns, or other such issues;
3.0	The project has room for innovation in the design and construction;
4.0	The project is not an emergency project or a project that has overly tight time constraints;
5.0	The project involves a significant design effort and the potential to save cost and time in the design.

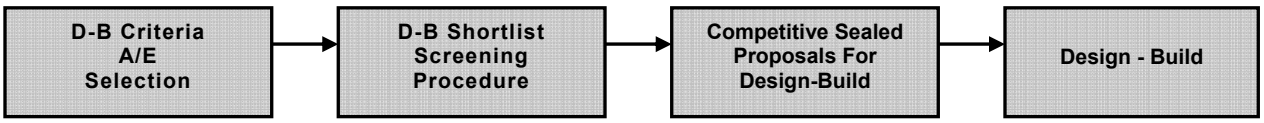
.2 When the DPW Commissioner designates a project as a **Total Cost Basis Project** then the D-B Project Delivery Method utilizes the following Screening and Selection Procedures.

D-B Project Delivery Method:	
The D-B Project Delivery Method is a Two Stage Procedure:	
Stage 1:	**Preparation of the request For Proposal:** A Design-Build (D-B) Criteria Architect consulting contract services is selected through the applicable **A&E Consultant Services Selection** (AKA Formal Consultant Selection), or a **OC Contract Task Assignment** and a Contract or Task Assignment is awarded to develop a D-B Request for Proposal that meet the goals, scope, and budget of the Project.
Stage 2:	**Competitive Sealed Proposal D-B Selection Procedure** Design-Build Teams (comprised of a General Contractor and Architects/Engineers Consultants) compete in a Two (2) Step Selection Procedure as follows: **Step 1:** **Qualifications Based D-B Shortlist Screening Procedure:** A Qualifications Based Shortlist Screening Procedure is utilized to shortlist prospective Design-Build Teams to be invited to respond to a D-B Request for Proposals. **Step 2:** **Competitive Sealed Proposal D-B Selection Procedure:** A Competitive Sealed Proposal D-B Selection Procedure is utilized to select the Design-Builder with the **"Best Value"** Proposal to design and build the Facility.

Organization:



D-B Delivery Method Sequence:



0.3 CONSULTANT SERVICES

0.3.1 BASIC SERVICES

The consultant services provided to the State of Connecticut will be considered Basic Service as defined by the specific contract prepared for their project. Additional Services will be specifically listed within the contract. All phases and services listed within the text of the contract are to be delivered upon the implementation of a contract, task letter or commission letter. If a phase, specific duty or normal service is to be excluded, it shall be so noted within the text.

It is the responsibility and duty of each consultant to make sure that any part of the contract they consider additional work or services is delineated as such. If a project is advertised for a specific expertise and that expertise is included as part of the Team before a selection Committee; that service is now included as a basic service. An example of this situation:

The State, in its advertisement for work, identifies the need to expand a dining function for an Agency. Included in its scope of work includes the need to expand the kitchen. Party to the design team is a kitchen consultant as a primary team player; this consultant is now part of the Basic Service of this contract and not an additional service.

Typical basic services are those activities that are normally delivered by a design professional within the generally accepted phases of a design process. Schematic Design, Design Development, Contract Documentation, Bidding and Construction Administration are considered those typical basic phases.

0.3.2 ADDITIONAL SERVICES

The DPW is willing to take an active position regarding additional compensation for work, which is clearly beyond the bounds of our maximum fee contracts. It must be clearly understood by the design professionals that a case of need be demonstrated for the work (project). It should be due to DPW or the Agency changes that are being proposed which require additional work. In other words, if the work has been incorporated in the Basic Services it is not considered additional work. Secondly, it is incumbent that the design professional address the need and effort required to meet these needs prior to undertaking any of this work. These risks are solely on the party that enters into any work without prior acknowledgment by the State. Any additional fees will be confirmed by the Project Manager (PM) and by the State Properties Review Board (SPRB) before acceptance.

0.3.2.1 PRE-DESIGN STUDIES

This phase of the project is undertaken to develop a program or expand on an idea that has not been developed enough to enable either the Agency or DPW to define a project or budget for Bonding. This phase precedes the normal schematic design phase, which is included in Basic Services of our design contracts. Refer also to Section 2.5.1 "Pre-design Phase" of the Consultant's Procedure Manual.

The pre-design study may require many detailed interviews to determine the real functions to be accommodated; adjacencies (bubble diagrams), determining space

requirements to accommodate function and staff, security requirements, blocking and stacking, models, etc.

The normal schematic phase includes, and is not to be considered a basis for pre-design, items such as: review of existing as-built design, review of existing conditions as they relate to as-built drawings; the development or required adjacencies and required square footage to meet normal design requirements.

0.3.2.2 CREATION OF AS-BUILT DRAWINGS (Record Drawings) WHEN NONE EXIST

Inherent in each building design with DPW, is the inclusion of As-built drawings as part of the design exercise. This would be the last aspect of the design contract and after construction is completed. In those cases, where an existing building has sufficiently inaccurate drawing information or none at all to utilize for the future design assignments, the A/E has to provide added services to provide the missing documents. This service might be a stand-alone project or an adjunct to an anticipated project. In either case, it is considered additional scope.

In addition to a Mylar reproducible document, this work will be also be provided in electronic format as required within our Consultant's Procedure Manual Section 3.2.2 "CADD Standards".

0.3.2.3 INTERIOR DESIGN/SPACE PLANNING & SYSTEM LAYOUTS

Within the Basic Services of the Designer's Contract is an aspect of interior design, which are part of the built-in areas of the base design. Included in basic services are: Millwork detailing, color selection of room finishes, and may also include window treatment and fabric selection if included in the original scope of the project. Additionally, as part of preliminary design, it is expected that the designer will produce a layout of furniture/work stations including a summary of utility needs to demonstrate that the design is functional and meets the program scope.

Any other work including final work station or furniture layout, listing of equipment, specifications for movable items, coordination of color and materials for out of contract items and any other work required for the movement, design or coordination of movable equipment and furnishings as well as utilities to be provided at the point of use, i.e. a moveable office cubical, shall be considered out of scope additional work.

0.3.2.4 EQUIPMENT LIST AND SPECIFICATIONS

This is covered in the above explanation; again any work required to be performed on movable equipment which is outside the A/E contract should be included as additional work. The exception is, unless the service is included in your basic service and in the scope of work. Examples of movable equipment are: Wastebaskets, desks, seating (not built-in), and photocopy equipment, panel systems, computers, etc.

Examples of non-movable equipment are; hard-wired or hard-piped devices, fixed auditorium seating, scientific workstations, packaged kitchenette units, etc.

0.3.2.5 ADDITIONAL COORDINATION WITH A CONSTRUCTION ADMINISTRATOR (CA) FIRM

Basic A/E services anticipate particular duties and skills will be provided as defined in the DPW contract. The use of a CA firm is an extension of DPW oversight and is not an expansion of A/E so is not considered additional work.

0.3.2.6 SEPARATE BID PACKAGES/DOCUMENTS FOR SEQUENTIAL CONSTRUCTION

If additional bid packages are requested by DPW that could include: New titles on each sheet, new reference standards per package, new supplementary general conditions, different format of pages for specifications and drawings, and the cost of duplicating the sheets for reproduction are efforts to be identified and could be considered extra work.

NOTE: re-issuing a bid package because the bids came in over budget is not to be considered additional work on the part of the Consultant.

0.3.2.7 WORK DUE TO EXTENDED DESIGN/CONSTRUCTION SCHEDULE (NOT THE FAULT OF THE A/E)

The contract language and intent in the Design Professional Contracts, is clear but does not contain specific time limit. If DPW or the Agency cannot adhere to a pre-arranged schedule and we cause additional expenditures or action requiring additional work by the A/E, we owe them the opportunity to negotiate additional fee to offset the delay/additional work. The time extension examples may have been caused by delay in funding, significant change of scope or poor contractor performance.

The DPW contract states that the A/E may be due additional fee if the actual construction time exceeds the Construction Contract Time by more than 25%, in every case, the A/E must justify by request for additional fees on the basis of extra work performed. The fact that as-built drawings were produced beyond the 125% date does not justify additional fees because the work to produce the as-built drawings was included in the basic services. Added fees may be justified for job meeting beyond the 125% contact time and then on a man-hour basis, not a prorated time basis. The billing will be based on actual hours billable up to a "Not-to-Exceed" estimate of cost. If an A/E error caused the time extension, the A/E will not be paid for added fee associated with that time extension.

0.3.2.8 FACILITY MANAGEMENT

A new area of A/E involvement, which has been featured in many of the software packages, which is offered as part of adjunct to CAD systems, is Facilities Management. DPW recognizes that any service or systems developed that can monitor quantify area or surfaces; might be the by-product of the software, but is not a basic service that we are including in our A/E contracts. If this or any tangential service, (such as work order development or periodic reminder of service visitation, etc.) is desired or required by an Agency; it may be considered an additional service.

0.3.2.9 ENVIRONMENTAL IMPACT INFORMATION OR PUBLIC HEARING

In general, DPW pays for any extensive A/E involvement in environmental activity relative to DPW projects. If a design professional is involved in a project that requires extensive

participation in the environmental process and additional effort is required by them to support or provide information that is not available; such as attend additional meetings, then DPW may approve this additional work with prior notification. It is the A/E's responsibility to provide at no cost, information on siting, building layout, floor plate orientation, provide copies of rendering/elevations, reading the document and attending 3 detailed environmental document review meetings, and implementation of the requirements under the Connecticut or National Environmental Policy Act. (See section 2.3.1 for further detail.)

0.3.2.10 THIRD PARTY (PEER) REVIEW - THRESHOLD PROJECTS

Any engineering firm being retained for the purpose of performing a structural peer review will have a fee negotiated for these services. If the Architect has a project, which will require having the structural design examined by an independent third party reviewer, then DPW may approve this additional work (with prior notification) upon the request of the consultant only if the added work is not a result of poor initial design.

0.3.2.11 STRUCTURAL (SEISMIC) DESIGN

The building code now requires an analysis and design for seismic forces. This provision was added with the adoption of BOCA 1987 Building Code on October 1989. The seismic design loads must be evaluated in addition to the wind loading design. DPW does NOT consider this code requirement to be a change in scope. HOWEVER, when designing a structure that is an addition to an existing building or which connects to an existing building - the resultant analysis of the older structure and/or the design of the connection will be considered and may be the basis for additional compensation.

0.3.2.12 ENERGY-LIFE CYCLE COST ANALYSIS

The building envelope and the mechanical and electrical systems must comply with ASHRE 90.1 **and** the design engineer must perform a life cycle cost analysis as required by the contract in compliance with the A/E Manual and will be reviewed by DPW and OPM. Code compliance and a life cycle cost analysis have always been a part of the mechanical systems design process. DPW does not consider these requirements to be a change in scope. Refer to "Energy Issues" Section 2.4.4 of this Manual.

0.3.2.13 ENERGY CONSCIOUS CONSTRUCTION - ENERGY BLUEPRINT

Work required to model or design alternative systems including impact on other systems must be clearly defined to enable the DPW to determine what is beyond basic good design verses additional effort to justify a particular system. The simple fact that the engineer is participating in the utility program's of energy conscious construction or blueprint, as part of good energy design; does not (automatically) normally qualify as additional service. Refer to "Energy Issues" Section 2.4.4 of this Manual.

0.3.2.14 TELECOMMUNICATION/DATA DESIGN

Work involved beyond the basic location of primary feed, general system distribution, conduit systems, furniture systems interaction and terminus locations may be considered

additional service unless it has been described as basic service on which the design fee is based. Systems below 100 phones shall be considered as Basic Service.

0.3.2.15 FULL TIME FIELD PERSONNEL

When requested, DPW will consider this activity as additional service. This will be beyond any work considered as basic to CA services as defined within the Design Contract and should not duplicate any service already included in the basic fee structure. The A/E will have to indicate how the Basic Services are not being duplicated. The initial fee, for this work, will be based on a lump sum contract with additional work to be based on actual man/hour costs beyond that which has will be contracted.

0.3.2.16 SPECIAL INSPECTIONS

When Special Inspections are required they are to be included in Basic Services. These Special Inspections must be listed and clearly defined. If the consultant is requested to provide other special inspections beyond those listed in Basic Services, DPW has the option of obtaining these inspection services or consider discussion for additional work.

0.3.2.17 SBI/SFM FIELD CONSTRUCTION CHANGES

Over the past few years, DPW has had to require extra effort by the Design professional during construction, as a result of field inspections by the State Building Inspector/State Fire Marshal (SBI/SFM) personnel. Based on these experiences, DPW will **not** normally accept an additional work claim by the involved parties, except when the (effort) additional work and man/hour costs can be clearly defined. This would typically pertain to Threshold Limit Projects. Refer to "Building – Permits, Approvals and Regulations" Section 2.4 of this Manual.

0.3.2.18 DESIGN CHANGES DURING CONSTRUCTION

When additional effort is required to fulfill the design needs to complete the request as defined above, DPW will consider additional fee based on an up-front negotiation for the design service. This must be submitted to the DPW Project Manager prior to performing the extra service.

1.0 ADMINISTRATION ISSUES

1.1 Contract Process

Standard contracts have been developed by D.P.W. in conjunction with the Office of the Attorney General.

1.1.1 Once the consultant has been selected, and the fee and scope of work negotiated, the Project Manager (together with the Contracts Administration Unit) will draft the contract, task letter or commission letter as the case may be.

1.1.2 For documents with fees in excess of those limits set forth in Connecticut General Statutes Section 4b-55, approval of the State Properties Review Board (S.P.R.B.) is required. The time period for said approval is approximately 15 days from the date of submission, however, the Connecticut Statutes allow 30 days for S.P.R.B. action.

1.1.3 The funding process is subject to bonding allocation by the Bond Commission and the time to accomplish this is variable. Following confirmation of the availability of funds, the document is forwarded to the consultant for execution. A transmittal letter accompanies contracts to be signed and provides detailed instructions for the consultant. It is important that the consultant comply with the requests for supplemental documentation (e.g., insurance, current license, certificate of authority) in order to avoid delay in completing the processing of the document.

1.1.4 In the case of contracts, approval of the Office of the Attorney General is then obtained. The time for said approval is approximately 21 days.

1.1.5 Change of Legal Entity or Name Change After Execution of the Contract

The consultant is obligated to provide prior written notice of any intent on its part to: l) change its name, 2) change the type of legal entity used to conduct its business, 3) merge into another legal entity or 4) be acquired by another legal entity. The entity that results from any of these actions is hereafter referred to as the "new entity".

Once the name change, change in legal entity, merger or acquisition has occurred, the new entity must promptly enter into a contract amendment with the State reflecting that the new entity is being substituted for the original signatory to the contract and that the new entity has assumed all obligations under the contract. In connection with the contract amendment, the consultant must provide the following documentation: 1) any professional license issued to the new entity; 2) a certificate of insurance in the name of the new entity; 3) a certificate of authority authorizing the officer or partner signing for the new entity to execute the agreement; 4) if the new entity is an out-of-state corporation, a certificate of authority to transact business in Connecticut and a certificate of good standing from the entity's state of incorporation.

Notwithstanding the above, the State shall continue to enjoy all of its rights to terminate the contract as stated in the contract. The State has no obligation to execute a contract amendment with the new entity.

1.2 CONTRACT REQUIREMENTS

1.2.1 Consultant Seal Data

To be provided by the contracts unit or at the initial scope meeting of every project.

1.2.2 Certificate of Authority

To be provided by the contracts unit or at the initial scope meeting of every project.

1.2.3 Certificate of Insurance

The need and types of coverage for all aspects of services being provided to DPW are covered within this manual.

Construction: Specifics for the construction contract can be found in Section 00700 "General Conditions of the Contract for Construction" in Article 35 "Contractor's Insurance".

Consultant: Our Architect or Engineer contracts cover the specifics needed for the Design Professionals and the information can be found in the "Terms and Conditions of Contract Between State and Architect" in Article III "Insurance". A copy of the standard contract shall be given to the Consultant at the initial scope meeting of every project.

1.3 CONTRACT FORMS

The various contract forms have been developed by DPW for the purpose of entering into a design and/or construction contract with an outside vendor on behalf of the State of Connecticut. These contracts are similar to, but are not copies of industry standard contracts. The applicable contract that DPW enters into and is developed for each specific type of service or discipline will be made available to the Consultant at the initial kick-off meeting for his work (scope meeting).

1.3.1 Standard Fixed Fee Contract with the Terms and Conditions

A standard example of a DPW design contract has been developed for complete architectural or engineering services, with inserts for the DPW Project Manager to modify where appropriate. Either contract is not complete without the referenced Terms and Conditions. This Consultant's Procedure Manual is also an extension of the standard contract requirements as stated in the DPW contract.

1.3.2 On-Call Contract and Task Letter Assignments

Annually, we advertise for specific disciplines to respond to an opened ended contract usually for a two year period. The terms of the contract are for an upset limited fee, and include all phases of design and usually construction administration. This work will be done for DPW, where quick delivery of a product is needed. Firms are chosen in a similar manner to all of our formal projects. In all cases, the base contract has no funds associated with it, and is fully dependent upon an Agency request to get a particular project done in a very limited time. The funds for the design related work will come form this Agency's funding.

Once the formal base contract is completed, this list is made available to all Project Managers to use if the project demands this type of delivery. The list and assignments are controlled by the DPW selection Board. The assignment is fully dependent upon the request to use this type of delivery system, and the assignments are rotated by the Board to assure even and full use of all of the assigned firms.

Once a project is identified, a request for an On-Call firm is requested. This assignment is than made and an initial meeting (scope meeting) of the design professional, Project Manager and usually the Agency is done to develop a scope of work and the associated fees. Once this is complete a Task Letter for the specific project is developed and processed so work by the design professional can take place. See also "Terms and Definitions" Section 0.1 of this manual.

1.3.3 Amendments

Changes to existing standard contracts are modified by either an amendment or a Commission Letter. See also "Terms and Definitions" Section 0.1 of this manual.

1.3.4 Commission Letter – Standard

The other form of change to a contract is the Commission Letter, this is normally used when additional duties are being added to the base contract. I.e., examples of this type of work would be the addition of survey work, borings and other subsurface investigation or other specialized service having been determined to be needed after the initial design contract had been signed off by all parties. See also "Terms and Definitions" Section 0.1 of this manual.

1.4 Consultant Payments

1.4.1 Standard Fee Breakdown

The Department of Public Works' standard breakdown of a Consultant's fee for basic services provided by a Consultant in connection with a Standard Fixed Fee Consultant's (Architect or Engineer) contract is as follows:

- Schematic Design Phase: 15% of total fee;
- Design Development Phase: 20% of total fee;
- Contract Documents Phase: 30% of total fee;
- After receipt of bids or within 120 calendar days after approval of the documents submitted in the contract documents phase, whichever, occurs first: 10% of total fee;
- Construction Administration Phase: 25% of total fee.

For other contract types, the fee breakdown will be as negotiated.

1.4.2 Partial Payments

It is the policy of the Department of Public Works not to make payments in monthly installments to consultants during the design phases of the project. However, on projects with an estimated construction value greater than $5,000,000 the Department may make contractual provisions to pay the Consultant in two equal installments for each of the schematic design and design development phases and three equal installments for the contract documents phase. Each request for installment payment shall be accompanied by a set of progress plans and specifications completed to a stage satisfactory to the Department. The Consultant must identify the need for partial payments during contract negotiations. As a minimum the invoice shall include: invoice number, invoice date, vendor number (FEIN/SSN no.), Project title, project location, DPW project number, DPW contract number, DPW contract stage reference, and total amount due.

1.4.3 Payments During Construction

During the construction administration phase the Consultant may submit monthly invoices for his services based on the percentage of completion of the construction contract until the construction contract reaches 95% complete. At that point, no further payments will be approved until the Consultant's services are complete and DPW receives the record documents.

1.4.4 Final Payment

The final payment to the Consultant will not be approved until all services called for in the consultant's contract have been completed to a stage satisfactory to the Department. In the case of construction administration, final payment will not be made until the Consultant has submitted and the Department has approved the record documents. The record documents shall be submitted in the following media: AutoCad drawing files updated to reflect the as-built conditions and a mylar plot of the AutoCad drawing files.

1.4.5 Payments for Extended Construction Administration Services

If through no fault of the Consultant, the construction administration phase is extended by more than 25%, the Consultant may be entitled to additional compensation for that portion of time in excess of the 25% extension. Additional compensation is not guaranteed. The Consultant must document the additional services provided and the amount of time it took to perform the additional services. It is advisable that the Consultant negotiate an hourly rate in advance if he expects to exceed the 25% extension. Regardless of the time extension, the Consultant shall not be compensated for services performed that are a part of his basic services, e.g. preparation of as-built drawings.

1.5 Governmental Agency Exemption Certificate

Upon full execution and approval by all concerned parties of the Department of Public Works' contract with the Consultant, the Department shall issue to the Consultant a Governmental Agency Exemption Certificate bearing the Department's tax exemption number. All subcontractor services provided under the Consultant's contract with the State of Connecticut are not exempt from taxes. The Department of Revenue Services can guide the Consultant as to which services are exempt and which are not. It is the responsibility of the Consultant to clarify tax status of those services with the Department of Revenue Services. The Department of Public works will not entertain any additional payments to the Consultant for taxes.

1.6 CONSULTANT PERFORMANCE EVALUATION –(A/E Report Card)

This evaluation handout is used by the DPW Project Manager (PM) in conjunction with the design phases of the project. The purpose of this handout is to enhance the expected performance by any Consultant that DPW has working on a project. It is important that the consultant have knowledge that his work will be evaluated at each phase of the project and have understanding of the purpose of the evaluation, which is to ensure that the end product of the design meets or exceeds our expectations. The purpose of the evaluation is to identify early warning signals of a problem developing and a method to correct these potential problems early. If a problem surfaces prior to the end of a phase, an evaluation can be made at any time. It is everyone's goal to produce excellent work at all levels.

This evaluation should be produced at the completion of each identified phase in the Consultant Contract. It should be discussed openly with the consultant team, and allow them to review each evaluation and make comment if they believe that a problem is unfairly depicted. The review should be reviewed with the Assistant Director of Project Manager (ADPM) before being sent to the Consultant. It is intended that this review will remain in the project file, a copy sent to the Administrator of Client teams (to maintain a comprehensive consultant file) and the Consultant. If necessary a copy can be given to the Agency, but it does not fulfill a purpose, because it is a DPW issue. If a consultant feels that the Project Manager is being unfair, they have the right to review this first with the ADPM and then with the Administrator of Client Teams.

THE EVALUATION FORM (for Design form #314, for Construction form #914):

The form is quite comprehensive, if due to the scope of work, a phase or activity is not applicable, the PM will insert **N/A** for a comment. Item #5 is for indicating the problem is with one of the consultant's sub-consultants. If a negative statement regards a sub-consultant, the sub-consultant has the right to attend a meeting with the Consultant and the PM to discuss the issues.

The rating is straightforward, the following definitions are the rating:

Unacceptable	Work has not been done, of the work done it is not sufficient to achieve the desired end product.
Below Standard	Little effort and well below the expected effort defined in the contract, marginal design to meet the program.
Standard	Within DPW expectations for the submission
Above Standard	Advanced beyond the expectation of the contract.
Outstanding	Far superior effort has been demonstrated, well beyond the expectations and scope of the work.

The Evaluation form is based on a 100% maximum rating.

2.0 TECHNICAL REQUIREMENTS

2.1 PROGRAMMING

2.1.1 DPW's RESPONSIBILITY TO AGENCIES

The Commissioner of Public Works is given broad responsibility to establish and continually review the space standards that are used throughout the State for purposes of establishing budgets and design parameters for State Agencies. In order to accomplish this task, the DPW continually reviews the needs and requirements of the users and is able to assure the legislature that the standards are in the best financial interests of the State in terms of need and quality. It is prudent to revisit these standards on a regular basis since change of mission and equipment is continuing.

This chapter is an attempt to recognize that there are spaces that cannot be easily defined due to singular purpose, special requirements or the fact that existing space is being utilized and the structural system might not lend itself to the dimensions suggested herein. Regardless, the intent of this document is to establish a planning guide to allow budgeting to progress and be based on rational and educated assumptions.

A major purpose of this chapter is to present a series of planning approaches and methods for use by State Agencies in forecasting and calculating space needs required to fulfill their missions. These space planning techniques are based on definitions and objective space assignment criteria and standards drawn from experience in the private and public sectors, that serve as the principal reference for determining the amount of assignable floor area needed for personnel, equipment and support functions.

The DPW goal is to find a solution that provides the best quality space with efficient and well-defined relationships between workers and their supervisors. Additionally, we are seeking to find the best methodology to minimize or reduce space assigned to allow Agencies to optimize their business operations yet provide the high level of service expected. This will assist each Agency to find methods to reduce costs and still maintain morale and performance. One of the areas that we will strive to more clearly define are the work station needs for staff that require "hoteling" work space. These are staff who generally work in the field and need some space to write reports and file necessary field reports, these spaces maybe shared spaces or at least reduced in size.

The methods used in this chapter for forecasting Agency space requirements are herein described. Three levels of planning are presented which can be used to determine future space requirements ranging from a broad long-range estimate to a precise determination of floor area needed. Guidelines are provided to assist agencies in choosing the level of planning that is most appropriate to the status of the information they have at hand.

2.1.2 SPACE STANDARDS

It is an important goal in facilities planning, design and management to maximize the ratio of assignable space to non-assignable space. Contemporary design criteria used by architects and office space planners, for example, are aimed at achieving at least an 80 percent efficiency ratio: that is, 80 percent or more of a building's gross area can be assigned to active functions (such as office workstations, intra-unit circulation, conference rooms, cafeterias, mailrooms, duplicating and photocopy, etc.). The remaining 20 percent or less is non-assignable and represents circulation (central corridors, stairs, elevators), custodial (janitor's closets, storage of cleaning supplies and equipment), mechanical (restrooms, boiler rooms, utility shafts, telephone and

electrical closets, etc.) and structural (exterior walls, interior partitions, unusable areas in basements and attics).

Other building types which generally serve large public gatherings might have large lobbies, wide corridors and extensive mechanical systems, tend to be at the lower end of the efficiency scale, typically 60-70 parent efficient. Exceptions to the 80% efficiency ratio will be analyzed and determined at the time space standard revisions are established.

2.1.2.1 COMPONENTS OF ASSIGNABLE SPACE

Assignable area encompasses all floor space "available for assignment to an occupant, (and) which can be put to useful purposes in accomplishing the Agency's mission." It is important to focus on assignable area as the point of departure for determining an Agency's overall facilities requirements, because such space is the fundamental "building block" of gross floor area calculations. Below are further definitions of the components comprising assignable floor area in State facilities.

Workstations - space for personnel, with desk, chair and other assigned furniture and equipment necessary to perform tasks, whether in a private office with floor- to-ceiling walls or an open office area either with or without modular system partitions.

Support Equipment - other furniture or special equipment (in addition to desks, chairs, and accessories directly assigned to workstations) needed to carry out general office functions. This category includes such items as photocopy machines, central file cabinets, computer terminals and possibly shared-use printers, and work tables.

Support Areas - functional areas and spaces not normally used to accommodate the workstations of office personnel, but necessary for the proper conduct of Agency activities. This category includes conference rooms, reception areas, interview and testing rooms laboratories and other similar functions.

General Services - mail and central supply rooms, printing and high-volume reproduction centers and records management functions are some of the functions included in this category.

Employee Services - lounges, employee health clinics, coffee shops, canteen vending areas, candy counters, new stands and concessions providing conveniences, services and personal items are included in this category.

Building Services - facilities management (e.g., building superintendent's office), shipping and receiving, and bulk supplies and equipment storage are among the functions included under building services.

Large private office space users, such as insurance companies, banks, and corporate headquarters facilities requirements ranging from 10 percent to 15 percent of aggregate assignable space for general services, employee services and building services.

Intra-Unit Circulation - this category refers to the assignable space between workstations for circulation within functional units, and includes secondary aisles and corridors to tie the various office functions together. A factor of 8-10 percent is used in the standards incorporated in this manual as an add-on for space assigned to office personnel (generally in open areas but excluding private office suites served by public corridors), unassigned equipment and furniture, interview rooms. However, intra-unit circulation space allowances are not added on to employee services and building services functions.

Economies of scale come into play with respect to the assignable-to-gross area used to measure efficiency of space. Experience in facilities management has demonstrated that the smaller the overall facility, proportionally more floor area is given over to non-assignable space requirements. Therefore, smaller agencies require proportionally more assignable space per employee. This disproportion occurs because support areas and unassigned equipment required cannot be shared or need to be of substantial size to perform its function for Agency activities.

2.1.2.2 SPACE PLANNING METHODS AND STANDARDS

This section contains three different space planning models that can be used to determine the space needs of State Agencies. The model used to determine space depends on the level of detail involved and the purpose for which the space will be used.

1. **Level I** (Model for Calculating Agency Space Needs) is a general long-range forecasting model for determining gross floor space requirements.

2. **Level II** (Model for Calculating Space Needs) provides both assignable and gross space needs based on the numbers and categories of projected personnel, various support functions, and certain assumptions regarding building efficiency.

3. **Level III** (Model for Calculating Specific Space Requirements) provides a detailed assessment of assignable space requirements, using specific data on authorized and projected staffing, itemized equipment listing and support space.

Levels I and II are useful planning methods for projecting space needs as part of the five-year Facility and Capital Planning Process, while level III is applicable to definitive space requirements.

Level I uses broad space planning parameters and requires the input of only the total number of personnel employed by a State Agency in order to arrive at gross area requirement. This approach is useful for making preliminary estimates of aggregate space needs on a long-range basis. It will provide a rough basis for projected facility requirements when detailed information on staffing levels by specific category and support functions is not available.

Level II is formatted as a computerized space calculation model, and provides a more detailed approach to projecting space needs. While certain assumptions are built into the model regarding workspace for agency employees and floor area requirements for support functions and equipment, the format is flexible enough to adapt to unique requirements. This method is used where specific data on staffing category projections and other data are available.

Level III requires firm data on agency employees with specific position categories, as well as actual requirements for support space and unassigned equipment and furniture. This space planning method uses computerized worksheets, and has been programmed to automatically calculate requirements based on standards.

LEVEL I Model for Calculating Agency Space Needs

The first general approach to making an approximate determination of space needed by State Agencies is on the basis of aggregate average gross floor area per person. This method of space forecasting takes into account the space needed for agency office personnel and supporting functions, as well as the non-assignable requirements such as corridors, restrooms, stairwells, lobbies and mechanical systems. The standards shown in the following table assume a general mix of office and related space, but do not include allowances for full-service cafeterias

or large specialized areas such as public areas found in DMV Branch Offices or client waiting rooms in Human Services' District Offices:

Total Employee Population	Gross Floor Area/ Employee	Facility Size Range (Gross Square Feet)
Under 75 Persons	250	Under 17,500
Under 250 Persons	225	17,500 - 60,000
Over 250 Persons	200	Over 60,000

These standards are useful only in making an initial approximation of space needs. They do reflect empirical observations of real-life situations found in the public and private sectors, and are intended to serve as a "rule-of-thumb" in calculating facilities needs when detailed planning data are lacking. It is important to re-emphasize that the size and functional efficiency of a facility influence the use of Level I planning standards. As noted earlier, smaller buildings tend to be less efficient because of the disproportionate amount of space necessary for lobbies, stairwells, corridors, restrooms, mechanical equipment and other non-assignable floor areas.

Some additional information that might be helpful at this level of detail are:

Office Buildings for State activities should operate near the 80% efficiency level. Whereas, Courthouses and other buildings with heavy public use may at best realize 60% efficiency.

Room types such as classrooms should have 20 sq. ft per student. Hearing rooms and lecture halls should be programmed for 25 sq. ft. per person. Public waiting rooms are typically programmed for 15 sq. ft. per person.

LEVEL II Model for Calculating Space Needs

Determining space needs using the Level II model requires data relative to the numbers and types of personnel and other elements of space use. This forecasting method provides more detail than Level I and is based on the numbers of executive, managerial, professional and clerical staff. It incorporates allowances for conference rooms, general services [Mail, supply storage, records management, etc.], building services [security, shipping and receiving, building maintenance, etc.], and employee services [lounges, coffee shops, new stands, etc.] This planning model also takes into account an agency's requirements to support technology and cafeteria facilities. Assignable space needs are then extrapolated to determine the gross space requirements based on building efficiency, (the ratio of assignable to non-assignable space.) For example, if an agency's assignable space requirement was 800 square feet and the building's efficiency factor is 80 percent, the gross area required would be 1,000 square feet.

Additionally, we recognize even at this level that there exists functions that cannot be calculated as office usage. When we have to address other building types we then can easily utilize the computer generated models that are attached.

Some examples of building types that tend to fall into these categories are:

EDUCATION - Most schools have classroom needs, these are general in nature and differ slightly from RVTS to the collegiate level. This level of analysis does address circulation, basic support for faculty offices at the collegiate level. When special needs arise due to the mission of the school, each specific classroom type will be defined by the Agency.

RESEARCH - Those spaces that are dedicated to long term research that would be found in either collegiate graduate level research or medical research must be defined by the programs

generating the need. Other research needs such as teaching laboratories or general research where generic lab space is required can be defined for budget purposes.

TECHNICAL - This particular classification refers generally to staff that are not defined within the Office Standards. Usually they require extensive review of technical documents such as building plans, scientific documents, or Reports. Quite often they also have the need to utilize new computer applications which again require extensive work space to support these job functions. Most often these spaces can be found in DOT, DPW, DEP and DPS where plan review or development is undertaken.

LEVEL III Model for Calculating Specific Space Requirements

This is the most detailed of the space planning models. Space has been determined for various levels of executive, managerial, professional and clerical positions for both systems furniture and standard furniture layouts. Both examples are attached in the Appendix.

The amount of space assigned to each employee by position is based on the determination of area is necessary to permit efficient performance of tasks. Job titles, pay classifications, seniority or rank are not as relevant to space assignment determinations as are the activities actually conducted and the duties performed by personnel occupying office space.

The space allocations should also be sized to accommodate furniture and equipment needed by an office worker to perform assigned tasks. One of several planning techniques for calculating the floor space needed for a given office function is to measure the footprint or floor area occupied by assigned furniture and equipment and multiply the aggregate by a factor of three. This technique provides for movement and passage space around furniture as well as adequate "elbow room" inside a private office.

The Level III model uses three worksheets when calculated by DPW. The first of these worksheets addresses space requirements for office workstations; the second, unassigned equipment and furniture used by the unit as a whole; the third relates to needed support space. When the time arrives to undertake this operation, the Project Manager will provide you direction and information on how and where this was generated.

2.1.2.3 CONCLUSION

This chapter has presented a series of planning guidelines to assist agencies in determining space needs, and a set of standards and criteria to serve as a uniform basis for calculating those needs. The standards are a common reference point for use by all State Agencies and will eliminate the confusion and contradictions implicit in the use of different (and often conflicting) sources for space calculations. Although the space planning methods described in this manual are adaptable to unique situations, it will be incumbent on State Agencies to show justification for exceptions to the space standards as described in this guidance document.

The space planning methods discussed in this manual have sufficient flexibility to adapt to a variety of applications. For example, the needs of one agency may dictate the use of modular panels and systems furniture as part of an "office landscape plan" layout. Another agency of comparable size will require a more conventional layout of private offices and open unpartitioned areas for general staff. The same space standards and criteria apply to both situations, and although the physical layout will result in distinctly different office environments, parity will occur in assigning space based on functional requirements.

The DPW Process Management Staff stands ready to assist and work with State Agencies in using these space planning methods and standards. The following services are available:

1. Public Works staff can provide Agencies with Level II calculations of space needs forecasts using data input on personnel projections from the Agencies. Please call the Department's Chief Architect at (860) 713-5631 for assistance in obtaining a Level II space needs forecast.

2. Training and technical assistance will be provided to State Agency personnel in preparing Level III projections of specific space requirements.

3. It is possible for State Agencies to gain direct access to the Level II and III planning worksheets and formats. In order to do so please contact your Project manager for the details.

2.1.3 DAYCARE FACILITIES

The DPW is obligated to provide facilities for this purpose based on certain levels of occupancy within a building or complex. This has been established by the Legislation in the State Statutes Section 17b-739 **Child care facilities in state buildings.** The statutes read: "Whenever the state (1) constructs, acquires or receives as a gift any office building which accommodates three hundred or more state employees or (2) alters, repairs or makes additions to an existing state building which accommodates three hundred or more employees and such alterations, repairs or additions affect at least twenty-five percent of the square footage of such building, the DPW shall notify the Department of Social Services (DSS). The DSS, with assistance of the Department of Administrative Services, shall determine the need for child care services for the employees in such building and other potential participants. If a demonstrated need for child care exists for thirty or more children of such employees and other potential participants and such care is unavailable, the DPW shall set aside adequate space for child care facilities in such building."

2.1.4 FOOD SERVICE FACILITIES

An Architect/Engineer or other consultants involved in the design of food service must be familiar with the health standards for food establishments required by the Department of Public Health (DPH). To assist the consultants in the design of food service facilities there are two publications available from the DPH, they are as follows:

- Technical Standards for Food Establishments Facility Plan Review
- Food Establishment Plan and Specification Review checklist.

The DPH does not require design document submissions for review and will rely on the **local health inspector** for compliance with the health requirements. Approval or sign-off must be obtained prior to going to bid.

If a private vendor is to manage the food service, the A/E must review the design of the food service facilities with the local health department. See also the "Permits and Approvals" section of this manual.

The food service equipment and installation of the equipment shall conform to the standards of the National Sanitation Foundation (NSF) and NSF Manual on the Sanitation Aspects of the installation of Food Service Equipment.

DEP Issues New General Permit for the Control of Fats, Oils, and Greases (FOG) in Food Preparation Facilities. Refer to:
http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325696&depNav_GID=1643

The general permit requires food preparation facilities to install either of two methods designed to significantly control FOG at its source. The first method is the installation of a passive 1,000-gallon minimum grease interceptor outside the facility. The second method is an automatic grease interceptor unit installed inside the facility. Either method results in the capture of the FOG before it enters the sewer system. The captured FOG is then taken to regional disposal sites where it can be further treated and potentially consumed as a fuel source in regional sewage sludge incinerators.

Food preparation facilities have until July 1, 2011 to comply with the conditions of the permit. However, newly constructed facilities, facilities that renovate, and facilities that are sold must enter into compliance as part of that process. Additionally, a municipality can require a facility or facilities to implement these changes if a sewer system area is deemed to be a FOG problem

area. The permit gives municipalities the authority to exempt food preparation establishments that have small discharges with minimal FOG quantities due to the nature of the food prepared.

Contact at the State of Connecticut, DPH Services:

Environmental Health – Food Protect
Bureau of Regulatory Services
Department of Health Public Health
State of Connecticut
Tel. (860) 509-7297

2.1.5 EQUIPMENT GUIDELINES

The DPW provides moveable equipment to most of the projects it undertakes. These services are either provided by in-house personnel or are contracted for by external consultants. In either case, the equipment is ordered through the procurement process, which falls under the Department of Administrative Services. It is most important to understand how this is done to have timely arrival of these goods to coincide with the delivery of the building. The procurement process takes up to six months to order and deliver plus another three to four months to identify and put together a listing of the equipment and funding needed to obtain the supplies. Lastly, space must be available to store the material if the spaces are not ready for immediate installation.

In most cases this work will be a separate contract, there is little need to burden the construction contract with this work since it is not dependent on structural support or mechanical/electrical connection that cannot be made by a simple power cord. In other cases it might be prudent to consider these items within the basic construction contract due to the need for coordination with the general support systems. This determination will be made by the design professional.

General Contract Equipment

Specific information related to the equipment or installation of the equipment shall be included in the plans and specifications under the following conditions:

Where installation and final connections to roughing-in are closely involved with structural features and are so extensive in character that coordination under the supervision of the general contractor is considered desirable.

Where moveable equipment in a given area is closely involved in matching design, finish and space requirements with other similar General Contract equipment in the same area.

General Contract Services

Plans and Specifications shall include:

1. Roughing, anchoring, installation and final connections where fixed equipment is either specified in the contract documents or included on the moveable equipment list for procurement outside of the General Contract.

2. Disconnecting, dismantling, moving, relocating, re-assembling, and re-installation with final connections, where existing equipment must be transferred from present locations to the new building.

3. DPW will be responsible for the review of these items to ensure that they are identified and specified correctly within the contract documents by the A/E or other consultants. The comments will also include details of related installation requirements and utility connections needed for a complete installation of the work.

4. If moveable equipment is being provided by a consultant, it is expected that a plan will be provided to demonstrate the equipment location, and any coordination needed either by utility connection or location to installed equipment within the base contract.

5. If loose equipment is being contracted to a consultant, they will utilize the existing DAS program where equipment has been bid under the general purchasing contract. If additional equipment is needed or not already on the bid list, the bid documents will be prepared in conjunction with the DAS format and be bid by that state Agency. All work will be approved by the Connecticut Standardization Committee.

Minimum Standard

Equipment and material specifications, when based on a particular proprietary brand and model, shall list only those points necessary to set the minimum standard as to function, quality, and workmanship that will be required of any proposed alternative to the specified brand. Include the names of three acceptable manufacturers, and their equivalent model, style or quality name or number. This requirement applies wherever a manufacturer and his product are given in any section of specifications. Do not include "or equal" clause.

2.1.6 BUILDING SECURITY

2.1.6.1 General

The Building Team needs to be aware of the need for site and building security in all or our projects. Some planning concepts are stated here because of the their importance to building planning, but architects should familiarize themselves with the in-depth standards being developed by DPW for security conscious design if your project is triggered by the listing below.

To determine which level of security is appropriate for your building, we have developed a set of minimum-security standards for their holdings. There are vast differences in the types of facilities and their security needs. To complete this analysis, DPW has divided the buildings into three security levels. If your building contains any of the following you need to contact your PM to explore the work and design that will be necessary to include as part of the basic design.

We are utilizing a list of guidelines that have been used by the California/OSHA Guidelines for Workplace Security:

1. Exchange of money
2. Working alone, at night or during early morning
3. Availability of valued items, such as money or jewelry
4. Guarding money or valuable property or possessions
5. Performing public safety functions in the community Mission of the agency involves working with patients, arrested persons, clients, passengers, customers or students known or suspected to have a history of violence
6. Employees with a history of assaults or who have exhibited belligerent, intimidating or threatening behavior to others.

Other factors that could be considered criteria that would trigger concern or at least the need to review the building would be:

1. Geographic location
2. Historical data relative to crime at the facility or in the surrounding area
3. Total square footage of the facility
4. Number of employees assigned to this location
5. Hours of operation
6. Extent of contact with the public
7. Lack of controlled access (sign-in process)
8. Lack of security personnel
9. Lack of electronic card access and/or alarm systems
10. Lack of video surveillance cameras on the perimeter of the facility

If your building or design involves any of the above, we have to pay careful attention to these structures.

2.1.6.2 General Guidelines

General Layout Many future security problems can be prevented by planning a clear, simple circulation system that is easy for staff and visitors to understand. Avoid mazes of hallways and hidden corners. Exterior doors should be readily visible.

Planning for Future Security Provisions All buildings should be planned to allow for future controlled access both to the entire building and to individual floors

Site Design Building entrances should be designed to make it impossible for cars to drive up and into the lobby. Concrete planters make excellent barriers; bollards are also acceptable if well integrated with the design of the building entrance. In general underground parking for public or delivery is to be avoided. Driveways and other vehicle access next to the building if possible should also be avoided.

Landscaping landscaping should be planned in such a way as to avoid creating potential areas of concealment for criminals. The placement of trees in close proximity to buildings and walls or fences where they can be used to get to an upper floor or breach perimeter security should also be avoided.

Parking Lots and Garages security for parking lot and garages as well as loading dock areas must also be thoroughly planned out. Appropriate fencing, lighting, landscaping, access control, panic alarm stations, video surveillance cameras, location of visitor spaces, whether or not there is to be direct access to a facility from a garage and the design and location of stairwell and elevator cores are some of the item s that must be taken into consideration with any project involving these types of areas. Whether or not electronic security systems are to be installed at the time of the project, provisions should be made for future deployment.

Building Entrances State buildings should have <u>one</u> main entrance for staff, visitors and the public. In large buildings a second entrance may be designated for employees only. Buildings may have additional doors used for egress or access to service areas. These doors should not be used as entrances. If this cannot be avoided, the issues must be discussed at length with DPW Security Unit and the user Agency(s).

Building Lobby The building lobby should always be designed to permit subdivision into a secure and a non-secure area. The two areas could potentially be divided by turnstiles, metal detectors or other devices used to control access to secure areas. There should be space on the secure side for a control desk and an area where bags can be checked. Mechanical ductwork, piping and main electrical conduit runs should not extend from one area to the other.

Shops (stores) should be located on the non-secure side of the lobby. Exceptions could exist where commercial establishments service the building population only.

Elevators serving the upper levels should be visible from the lobby and arranged so at least one car can be designated for secure traffic in the future. This elevator should be accessible from the future secure side of the lobby only. Generally, elevators should not travel between the parking levels and the upper floors of a building. A separate bank of shuttle elevators should connect the parking garage with the "non-secure" side of the lobby only. Employees and visitors then pass to the secure side and take elevators to the upper floor of the building.

There may be exceptions to the above, these must be discussed with your PM as well as with the DPW Security Unit to resolve any non-conforming design.

Mechanical and Electrical Spaces Access to mechanical and electrical spaces should be from the inside of the building, located on the secure side of the (potential) security point in the building lobby.

Exterior lighting is one of the most over-looked yet effective means of preventing criminal acts in or around property. Therefore it needs to be designed with safety and security as the first priority. Whether or not video surveillance cameras are installed around the outside perimeter, the lighting designer should assume this would occur at some point and plan appropriately.

2.2 MASTER PLAN

2.2.1 MASTER PLAN

A master plan shall be undertaken when an Agency has determined its facility or campus is in need of an overall plan for future building or expansion. Refer to "Pre-design Phase" Section 2.5.1 in this Manual for further detail.

2.2.2 STUDY EXAMPLE:

The following is an example of a study for bringing a building into compliance with present State of Connecticut Fire and Life Safety Codes and Handicapped Codes. This is an example of an Exhibit A for a Study Contract. The Exhibit A should state specific DPW building numbers for whatever specific buildings would be included in the study. It is important to note the number of submissions, quantity of copies per submission, time for Consultant to produce a submission and dollar value of each submission should all be included in the information of a study contract.

A. The First Submittal shall be an outline report summarizing the findings and recommendations of the data gathering and data analysis.

    1. Data gathering shall consist of the following:

        a. Review existing plans, Fire Marshal reports, and other state building projects that are in construction or in design, which plans, reports and projects are related to the listed buildings.
        b. Review existing building plans and conduct an on-site investigation of existing physical features and conditions, which plans, features and conditions are related to the listed buildings.
        c. Contact the State Fire Marshal's office to insure that all information related to inspections are incorporated in this report.

    2. Data analysis shall consist of the following:

        a. Detail specific corrective action to bring the listed buildings into compliance, taking all of the data gathering information into account. Discussions with the State Fire Marshal's office will be had, as necessary, to resolve all problems related to the codes.
        b. Estimate implementation costs and establish priorities. If a code violation is found that is part of an existing Public Works project, no cost evaluation is necessary, but a reference of the Public Works project number is required, with an approximate compliance date.

B. The Second Submittal shall consist of the draft report. The draft report shall incorporate the outline report and shall address the comments raised during the review of the first Submittal. The draft report shall be submitted for review prior to printing the final report. The Third Submittal shall consist of the final report and shall be complete and bound.

C. The final report shall incorporate the draft report and shall address the comments raised during the review of the Second Submittal. The text shall be prepared in an 8 ½" x 11" black and white format. The graphics while bound into the final report, may fold out to a larger size than 8 ½" x 11". Each building shall be handled separately, but may be included in a single volume for the Agency of which it is a part.

2.3 SITE - PERMITS, APPROVALS, AND REQUIREMENTS

2.3.1 Environmental Policy Act

The purpose of the Connecticut Environmental Policy Act (CEPA) (Sections 22a-1 through 22a-1h of the Connecticut General Statutes) (as with the National Environmental Policy Act) is to identify and evaluate the impacts of proposed state actions which may significantly affect the environment. This evaluation provides the decision-maker (the sponsoring agency and DPW) with information necessary for deciding whether or not to proceed with the project.

The design consultant is not expected to decide whether a project warrants a complete CEPA review; such determination is left to the sponsoring agency and DPW. Within DPW Technical Services, the Supervising Environmental Analyst is the DPW CEPA Administrator for this process. At the discretion of the DPW CEPA Administrator or at the request of the DPW APM/PM or sponsoring agency, an Initial Environmental Review (IER) may be conducted by the DPW CEPA Administrator to determine whether the project is applicable to CEPA or to assist in scoping out the environmental issues to be covered in an Environmental Impact Evaluation (EIE). The IER is an internal cursory review or screening process that looks at issues in broad terms. It is not meant to be a detailed review process nor is it required for every project. An IER serves these primary functions:

- to assist in determining if an EIE is needed;
- to document the review of potential issues that are determined not to be significant;
- to identify the significant issues to be analyzed in detail if an EIE is needed; and
- to assist in determining potential permits, certifications, and approvals for the project.

(Note: an IER does not replace the design consultant's obligation to continually assess what permits, certifications, or approvals the project may require as the project progresses or from submitting DPW's *Checklist for Permits, Certifications, and Approvals* (Form 330 L) with each phase of the project.)

The consultant selected for the design will not prepare a CEPA document as this would create an inherent conflict of interest. If an EIE is required, DPW will contract with an independent environmental consultant to prepare the document in accordance with DPW's CEPA Procedural Manual as amended. The design consultant shall provide the environmental consultant with copies (hard or electronic as needed) of current design information, drawings, and site plans to incorporate into the environmental document. Normally, the CEPA document and the design are developed simultaneously.

The design consultant **shall be** responsible for reviewing a CEPA document, particularly if the CEPA process occurred prior to design, to ensure information relevant to design and construction are accurate, and that agreed upon mitigation measures can be incorporated into the design/construction and are incorporated into the contract documents. A project can not proceed to the contract document phase without having completed the CEPA process, unless special permission is granted by DPW. The CEPA process is considered complete when the Office of Policy and Management (OPM) determines the EIE and the Record of Decision are adequate.

The design consultant shall anticipate attending up to two environmental document review meetings (typically called the Working Copy and Revised Working Copy review meetings). The design consultant is also responsible for complying with any permit requirements noted in the CEPA document. If the design consultant is involved in a

project that requires additional effort beyond the normal services (e.g. attend additional meetings or a public hearing), the DPW may approve this additional work with prior notification from the consultant.

For historical requirements refer to Consultant's Procedure Manual "Cultural Resources" Section 2.4.2.

Refer also to *Checklist for Permits, Certifications and Approvals* (form 330L) as indicated in Section 2.3.5.

For further information or for assistance regarding CEPA, contact:

Jeff Bolton, CEPA Administrator
Supervising Environmental Analyst
DPW Technical Services – Environmental Planning
165 Capitol Avenue, Room 275
Hartford, Connecticut 06106
Phone: (860) 713-5706
Email: jeffrey.bolton@ct.gov

2.3.2 Storm Water Discharge Standards

General
The purpose of the storm water discharge requirements is to ensure that state facilities are constructed and operated in a manner that conserves and protects the waters of the state and to eliminate or reduce the risk of flood damage to property and life. The goal of stormwater management design should be, to the extent practical, no net increase to peak flows, no new stormwater connections, and infiltration with minimal engineering control structures (i.e., catch basins, piping, etc.).

Both the Architect/Engineer (A/E) and the General Contractor shall conform to the requirements of Department of Environmental Protection's (DEP) storm water and dewatering wastewater discharge statutes and regulations. They shall use current "Best Management Practices" such as the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (DEP Bulletin 34) (as amended), *2004 Connecticut Stormwater Quality Manual* (as amended), or other practices acceptable to DEP and DPW. In addition, LEED® Silver, or equivalent, standards and criteria for sustainable site design shall be incorporated as applicable.

All projects that involve site work require a "Soil Erosion and Sediment Control Plan" or a "Storm Water Pollution Control Plan." The type and complexity of the plan will depend on the size and particular conditions of each site:

- If the construction on a site disturbs **one (1) or more acres**, then a "Stormwater Pollution Control Plan" that conforms to the "General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities" shall be prepared and the project will require ***registration*** with the DEP.

- If the site disturbance is **less than one (1) acre**, a "Soil Erosion and Sediment Control Plan" that conforms to the 2002 Connecticut Guidelines, as amended, shall be prepared and ***no registration*** with the DEP required. A Soil Erosion and Sediment Control Plan is a "simple" Stormwater Pollution Control Plan.

If the construction activities will result in the disturbance of one (1) or more total acres of the site and the other conditions for eligibility for a "General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities" are met, the A/E shall prepare and submit a completed Stormwater Pollution Control Plan and a General Permit Registration Form to the Department of Public Works (DPW) for submission to the DEP as part of the Contract Documents. This includes the Environmental Professional Certification part of the general permit registration form. The A/E shall also provide copies, with support documents, to the General Contractor for record files at the construction site. *Note:* The term "General Contractor" shall refer to either the "General Contractor" or the "Construction Manager," whichever is applicable.

For clarification and compliance purposes with regard to DPW projects requiring the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, the General Permit Registration Form, and other applicable DEP forms, the following terms shall mean the General Contractor: *Developer*, *Permittee*, *Registrant*, *Owner*, and *Applicant*.

If a Stormwater Pollution Control Plan is required for the project it shall be designed to address two components of stormwater pollution: (1) pollution caused by soil erosion and sedimentation during and after construction; and (2) stormwater pollution caused by use of the site after construction is completed, including, but not limited to, parking lots, roadways and the maintenance of grassed areas. In addition, the plan shall be prepared to minimize any adverse increases to the peak flow rate, the timing of runoff and the volume of runoff. Hydrology studies may be conducted at a level of detail commensurate with the probable impact of the project.

For projects ranging from one (1) to less than ten (10) acres of site disturbance, the Stormwater Pollution Control Plan is not required to be submitted with the general permit registration. However, projects involving ten (10) or more acres require the plan to be submitted with the registration along with an additional five hundred dollars ($500.00) for Plan Review.

If the project, or portion thereof, is located in a designated "base flood" floodplain area ("A Zone" or 100-year floodplain) as published on the National Flood Insurance Program maps or would increase peak runoffs rates or change the location and quantity of discharge, then the A/E shall prepare and submit a completed "Flood Management Certification" application to DPW for review. If a Flood Management Certification application is required, then the A/E ***shall*** submit a complete application to DPW for review at the beginning of the Design Development phase. The A/E shall coordinate and work with DPW Environmental Planning to ensure the application is submitted to DEP ***no later than the fifty percent (50%) stage of the Design Development phase***.

Responsibilities of the A/E and the General Contractor

The A/E, through their professional civil engineer, shall:

- During the preparation of the A/E contract scope, the A/E shall meet with DPW Environmental Planning to determine which type of plan and permit will be required for the project.

- Prepare a Soil Erosion and Sediment Control Plan, a Stormwater Pollution Control Plan, a General Permit Registration Form, a Flood Management Certification application, and other required DEP forms, as appropriate.

- Use DEP Publications to assist in preparing plans and applications, such as the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended), *2004 Connecticut Stormwater Quality Manual* (as amended), and the *Hydraulic Analysis Guidance Document* (DEP-IWRD-GUID-100) (as amended).

- Coordinate and accommodate drainage analysis and requirement needs between the DEP and the State Traffic Commission – DOT Drainage and Hydraulics.

- Prepare and submit the methods and design for the stormwater management facilities with the schematic design phase.

- Assist and provide DPW with the necessary documents for internal review and submission to DEP.

- Coordinate all questions or issues regarding DEP Inland Water Resource Division through DPW Environmental Planning. The A/E shall not submit an application to DEP IWRD without DPW review and without ensuring the project is listed on DPW's DEP Priority Project List. To place a project on this list contact the DPW Supervising Environmental Analyst.

- Include in the project specifications that the General Contractor meets their responsibilities in regards to storm water discharge and flood management, if applicable.

- Include in the Contract Documents, the Soil Erosion and Sediment Control Plan or Stormwater Pollution Control Plan, as the case may be, with the related text and details, and the General Permit Registration Form and/or an approved Flood Management Certification application along with any related DEP forms.

- During construction, the A/E via their professional civil engineer, shall, with the General Contractor, walk the site once a month, or after a heavy rain, to inspect all soil erosion and sediment control/storm water pollution control provisions.

The following direction is provided to the A/E to ensure continuity from design/permitting to construction and in the development of contract documents. This direction [options available] are a direct result from the A/E's modification of Division 1 General Requirements, "Construction Facilities and Temporary Controls" Section 01500 for the necessary options to the permitting process, and the possibilities shown below.

The General Contractor shall:

When registration for a General Permit is not required

- Be fully responsible for soil erosion and sediment control.

- Conform to the Soil Erosion and Sediment Control Plan included in the contract documents or other control plans approved by DPW and DEP. If the General Contractor prepares such a plan, it shall be prepared at the General Contractor's own expense.

When registration for a General Permit is required

- Be fully responsible for storm water discharges by submitting to DEP a General Permit Registration Form at least thirty (30) days prior to the commencement of the activity involving site disturbance of one (1) or more acres. For activities involving ten (10) or more acres, the Stormwater Pollution Control Plan shall be submitted for Plan Review along with the registration form. The General Contractor shall be responsible for compliance with the general permit requirements and registration form by serving as the *Developer*, *Permittee*, *Registrant*, *Owner*, and *Applicant*, as the case may be.

- Conform to the Stormwater Pollution Control Plan included in the contract documents or other control plans approved by DPW and DEP. If the General Contractor prepares such a plan, it shall be prepared at the General Contractor's own expense.

- Sign and cause to be signed by each appropriate subcontractor, the "Certification Statement" required by the General Permit.

- Provide, maintain, and monitor a rain gauge on the site; the monitoring procedures shall include maintaining a record log of the readings. The General Contractor shall provide the rain gauge.

- During construction, the General Contractor shall inspect the site in conformance with the General Permit, including an inspection at least once every seven days and within 24 hours of the end of a storm that is 0.1 inch or greater, as shown by the on-site rain gauge.

When a Flood Management Certification has been approved by the DEP

- Obtain a copy of the Flood Management Certification application and DEP approval letter.

- Comply with all construction-related mitigation or design elements.

For questions or assistance about these permits contact:

Jeff Bolton, Supervising Environmental Analyst
DPW Technical Services – Environmental Planning
165 Capitol Avenue, Room 275
Hartford, Connecticut 06106
Phone: (860) 713-5706
Fax: (860) 713-7250
Email: jeffrey.bolton@ct.gov

2.3.3 Utility Hookups

During the design the Architect/Engineer shall identify and coordinate with the applicable utility company all issues pertinent to the proper installation of utilities on a project. Examples of the tasks that shall be completed by the Architect/Engineer are as follows:

- Obtain from the local jurisdictions written authorization to connect to the public water supply system, storm drain system, sanitary system, etc. (See Utilities re. Checklist for Permit and Approvals)
- Identify in the construction documents all fees to be carried by the general contractor in his bid for utility connections to the public utility systems.
- Coordinate with the regulated utilities (e.g., electric company, gas company, etc.) the requirements that must be completed to properly install the utilities. Identify all fees and other costs associated with the utility hookups so that DPW can process a purchase order in a timely manner to avoid delay. Complete Checklist for Permits and Approvals and return to the DPW-Project Manager.

The A/E shall submit the design development drawings to the local utility owner before inclusion into the project documents.

The drawings submitted at the design development (DD) phase shall be complete drawings with respect to the Consultants Manual requirements and shall clearly indicate all expansions, additions, or relocation of utility systems which connects to the local utility. The documents must also clearly show the nature and extent of the work, the details for the construction, and note the sequence of the construction, as appropriate. The task shall be directed and coordinated by the prime design professional. All relocation or extensions of major local utility or agency underground utility lines shall be prepared under the direction of a registered professional engineer competent in this area of design and construction.

Coordination with the Regulated Utilities: Prior to the CD phase, Coordinate with the regulated utilities (e.g., electric company, gas company, water, sewer, etc.) the requirements that must be completed to properly install the utilities. The Consultant shall submit the required design and construction documents to the local utility owner before inclusion into the construction documents.

Easements may be required for several reasons, some of which are as follows:

- Construction on or in close proximity to adjacent property.
- Off-site utilities.
- Off-site storm water runoff.
- Temporary and/or permanent easements may be required with Agreement of Maintenance for items, which may be overhead, or on or below the surface

If easements are required it should be indicated on the Checklist for Permits and Approvals.

A legal description and map shall be provided by the Architect/Engineer which, in turn, shall be forwarded to the DPW-Leasing Unit by the DPW Project Manager. The A/E may provide the documents and other required information as additional services unless otherwise determined.

Refer also to Checklist for Permits, Certifications and Approvals form indicated in Section 2.4.1.

2.3.4 UNDERGROUND STORAGE TANKS

REGULATORY REQUIREMENTS

Underground storage tanks must be designed and installed in accordance with federal regulations (40 CFR 280 and 281), state regulations (22a-449 (d) –1 and 101 through 113 inclusive), NFPA 30, NFPA 31, NFPA 327, API 1604, and all other applicable state and federal regulations. The contractor must comply with OSHA regulations for hazardous waste operations (29 CFR 1910.120) if contamination is found or suspected. Refer also to Checklist for Permits, Certifications and Approvals form indicated in section 2.4.1.

SOIL SAMPLES

DPW requires that all tank removal or replacement projects include soil samples of the walls and bottom of the tank grave. The samples shall be analyzed for evidence of contamination in accordance with the Department of Environmental Protection (DEP) guidelines for "Sampling and Analytical Methods for Underground Storage Tank Closure" (http://www.ct.gov/dep/cwp/view.asp?a=2692&Q=322592)

STOP WORK AND NOTIFICATION

Contractors shall be required to stop work and notify the DPW Construction Administrator (CA) in the event that contamination is discovered. The DPW has established guidelines for the continuation of the work and the investigation of the contamination subsequent to the detection.

Any soil excavated from a tank grave is considered potentially polluted and must be sampled and analyzed prior to either reuse on site, or disposal off site. Reuse of polluted soil must be done in accordance with RCSA 22a-133k-2. Polluted/contaminated soil to be removed from the site must be sent to a facility permitted to accept such soil. The analytical protocol of the receiving facility must be followed. Under no circumstance is soil to be removed from the site without prior written consent of DPW.

NEW INSTALLATIONS

All underground storage tanks shall be double-wall tanks with interstitial monitoring. Fiberglass reinforced plastic (FRP) underground storage tanks are preferred for unheated oils. #6 oil and in some cases #4 oil (depending on the return oil temperature) require steel tanks due to the elevated product temperatures. The DPW Technical Services Unit has standard design details and specification sections (in electronic format) for both underground and aboveground tank installations, piping systems and environmental issues. It is recommended that the A/E use these details and specifications as the basis for their designs, as they are well tested and provide for standardized installations at all State owned facilities.

TANK REGISTRATION

The A/E shall assist the agency in properly registering all tank work with DEP. All work, including removals, new installations and major modifications must be registered. Registration forms (DEP EPHM-6) with the required back-up information must be sent, within 30 days of completion of work, to the DEP UST Enforcement Unit at the following address:

Department of Environmental Protection
Bureau of Waste Management
Underground Storage Tank Enforcement Unit
79 Elm Street
Hartford, CT 06106
Attn: Scott Deshefy

If there are any questions about tank work contact:

Joseph V. Cassidy. P.E.
DPW Technical Services
165 Capitol Avenue Rm. 275

Hartford, CT 06106
Tel. (860) 713-5705 e-mail: joseph.cassidy@ct.gov

2.3.5 Permits, Certifications and Approvals Checklist and Policies

Many DPW projects involve at least one, if not multiple, permits, certificates, or approvals ('permits"). The permitting process can have a significant impact on a project's schedule and cost, and therefore requires constant attention by the consultant throughout the design and contract document phases. Some permits are required prior to construction while others are required for operation of the facility/equipment and therefore, have different lead time issues. For those permits requiring approval prior to construction, ***DPW's policy is a project cannot go to bid until the necessary permits are obtained.***

For many of the larger capital improvement projects, this process can become the critical path on a project's schedule. For example, waiting to submit an application during the contract document phase often does not leave enough time to obtain the necessary approvals from regulatory agencies and can delay bidding for months. For this reason, the consultant should include a separate permit/approval section and track the status of such approvals through their project schedule.

To assist consultants in the permitting process, DPW has a *Checklist for Permits, Certifications, and Approvals* (DPW form 330L) and its companion document, *Instructions to the Department of Public Works Checklist for Permits, Certifications, and Approvals* (DPW Instructional Guide 330I). The consultant shall adhere to the following procedures and policies regarding permitting:

- The Checklist shall be submitted with the consultant's proposal and revised and resubmitted with each design submittal to the DPW APM/ASC/PM for all DPW Projects. Copies of the Checklist are to be sent to DPW Environmental Planning and DPW Code Services. Prior to submitting a Checklist, the consultant shall ensure it is using the latest Checklist version by checking on DPW's website (www.ct.gov/dpw) under "Forms."

- The consultant shall review each permit to determine if it is applicable to the project. For supplemental information about an individual permit, contact the appropriate agency or agency website for specific information or DPW's *Instructions to the Department of Public Works Checklist for Permits, Certifications, and Approvals* (DPW Instructional Guide 330I).

- The consultant shall coordinate with the appropriate agency(ies), complete all necessary application forms, and submit the permit(s) for the project, except as indicated below.

- All Department of Environmental Protection Inland Water Resources Division and State Traffic Commission correspondences and applications shall be coordinated with the DPW Supervising Environmental Analyst.

- For projects requiring DEP Inland Water Resources Division applications, the consultant shall make a request to the designated DPW PM and DPW Environmental Planning that the project be on DPW's DEP Project Priority List.

- For complex or significant regulatory involvement, DPW Environmental Planning shall be involved to participate and/or coordinate with the regulatory agencies and permitting process.

- The consultant shall ensure all the required permits, certificates, and/or approvals are obtained for the project and that the design meets applicable state and federal laws and regulations.

- ***Permits required prior to construction should be obtained during design development, but no later than the early part of the contract documents phase. The consultant shall notify in writing to the designated DPW PM any outstanding permits at 50% completion of contract documents.*** This requires that the consultant's team read permit guidance documents, coordinate with DPW, the client agency, and regulatory agencies, and prepare permit applications during schematic design phase and have completed such permit applications at fifty percent (50%) design development phase and be ready for submittal to the appropriate agency.

- The consultant shall review all prior environmental documents for the project to determine required permits or other related issues. The consultant shall be responsible for reviewing any Connecticut Environmental Policy Act (CEPA) document, particularly if the CEPA process occurred prior to design, to ensure information relevant to design and construction are accurate, and that agreed upon mitigation measures in the documents can be incorporated into the design/construction and are incorporated into the contract documents (see sections 2.3.1 and 2.3.2).

- The consultant shall not submit the project for review or "approval" to any municipal land use commission or board, unless the designated DPW PM approves such review; however, such review is only a courtesy, since state actions are exempt from local approvals, ***EXCEPT*** for demolition permits (see "Demolition" section 2.4.9).

If additional study is required by a permitting agency, then an additional scope of work can be negotiated with the designated DPW PM for such services. DPW is responsible for all application fees, except for the "General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities," which shall be submitted and paid for by the General Contractor. However, in the case of the stormwater general permit, the Consultant shall complete all of the required information and include it in the construction contract documents for use by the general contractor (for more detail see "Storm Water Discharge Standards" section 2.3.2)

For questions or comments regarding the Checklist or for permitting coordination contact:

Jeff Bolton, Supervising Environmental Analyst
DPW Technical Services – Environmental Planning
165 Capitol Avenue, Room 275
Hartford, Connecticut 06106
Phone: (860) 713-5706
Email: jeffrey.bolton@ct.gov

2.3.6 BOUNDARY AND TOPOGRAPHIC SURVEY REQUIREMENTS

2.3.6.1 Standards

All surveys shall be performed by land surveyors registered in the State of Connecticut. The Survey must include all areas that may be subject to construction operations including access beyond paved roads and staging areas. Include sufficient area (minimum of 50' from the proposed limits of construction) to determine the consequences of drainage and wetlands.

The survey drawings shall be the same size as the contract design drawings.

Proposed work shall be indicated on screened survey drawings. The screening shall be such that there is sufficient differentiation between existing conditions and proposed work but not so much that the existing information is not legible.

Each sheet shall have the registration seal of the surveyor, a certification of the standard of accuracy, and the date of the survey. Any information obtained from other sources or maps shall be noted giving date and origin of the information.

The scale for surveys shall normally be the scale most used at that facility. Otherwise, it shall be 1" = 20' or 1" = 40'. In all cases, the scale shall be an engineering scale.

Where large property surveys are involved, a smaller scale may be used. All plans shall be oriented in a similar manner, the usual is North to the top of the sheet, this shall be consistent with all other drawings for the structure in similar orientation.

Where the area surveyed involves more than one sheet, a key plan and adequately marked "match lines" shall appear on each sheet.

The edges of all digitized maps must exactly match digitally with those of all adjacent maps.

The digital representation of the common boundaries for all graphic features must be exactly the same, regardless of level/layer. Each feature within a map theme must be represented by a single graphic element (e.g., polygon, line, or line string).

Lines and line strings which represent the same graphic element must be continuous (i.e., not broken or segmented), unless that segmentation reflects a specific visual line type. Lines/strings representing the same type of data must not cross except at intersections.

Polygons must be closed (i.e., the first x- and y-coordinates must exactly match the last x- and y-coordinates). Each polygon (i.e., buildings) must have a single unique centroid to which attributes (i.e., an attribute table) can be attached. Polygons of the same coverage must not overlap and must cover the area of interest completely (i.e., have no gaps in coverage).

All graphic elements that connect must exactly connect digitally, without overlaps or gaps.

Straight lines must be represented by only the beginning and ending x- and y-coordinate points. Line strings must not cross back on themselves or be of zero length.

2.3.6.2 Bench Marks

On all surveys showing elevations, a bench mark shall be established within the area covered by the survey from:

1. Existing bench marks, if any, if the survey is on the grounds of an existing facility. The Department of Public Works (DPW) has on file benchmarks within many of the facilities.

2. From USGS or USC&GS if the above is not available.

3. From town or city datum most used in the locality, if within the limits of a developed area.

A note on the survey shall cover a description of the established benchmark and the reference datum. The established benchmark shall be a reasonably permanent object located outside the contemplated construction area and preferably within 600 feet of the proposed construction.

2.3.6.3 Boundary Surveys

Where boundary lines are required, each boundary line of the lot shall be located and show accurately measured or computed lengths and directions based on the close traverse.
Where no permanent markers exist, permanent markers shall be installed at each corner and at the P.C. and P.T. of curves. Such permanent markers shall be 3 to 4 foot long ½ inch diameter steel rods, unless specifically instructed to install concrete monument posts. All markers and monuments to be set a minimum of 1 inch above the existing grade. The drawing shall show the names of streets and names of adjacent property owners with indications of the limit of adjacent owners property on the boundary line.

The standard of accuracy for boundary line surveys shall be Class A-2 as defined in the "Regulations of Connecticut State Agencies, Sections 20-300b-1 thru 20-300b-20" of the Connecticut General Statutes (CGS).

On boundary line surveys, a certified written description agreeing with measurements and courses given on the plot reading in a clockwise direction shall be submitted.

Deed references shall be noted on the map.

2.3.6.4 Topographic Surveys

The standard of accuracy for topographic surveys shall be either Class T-2 or T-3 as defined in the "Regulations of Connecticut State Agencies, Sections 20-300b-1 thru 20-300b-20" of the Connecticut General Statutes.

Where topography is required, the following requirements shall be applicable:

1. Contours at 2 foot intervals, except for flat areas were 1 foot contours or spot elevations will best show the ground elevations. At least two benchmarks and two control points shall be provided.

2. Elevation of floors, top of manhole frames, paved streets, curbs, culvert inverts and adjacent waterways.

3. Location of buildings, retaining walls, ditches, streams, stream channel encroachment lines, flood plain lines, manholes, catch basins, culverts, poles, fire hydrants, streets, drives, walks, fences, hedges, boundary of wooded sections, isolated trees with size and type, and any other man made or natural features which would interfere with or cause obstruction to developing the land for further construction.

4. The survey services shall include a record search for prior building and utility occupancy. The survey research shall include review or prior agency plans for the project area and a review of DEP aerial photos for the years 1950+ and 1970+ (20 years and 40 years prior to the survey). If prior occupation is found, the outline of the previous buildings shall be shown on the final survey.

5. Any obvious features which shows the location of utilities that are serving or could serve the area including inverts of storm and sanitary sewers at manholes. Include also inverts of steam lines, bottom of electrical duct bank(s) elevations, etc. at manholes.

6. Locations of existing underground structures and obtaining elevations of the same such as underground tanks, water lines and other utilities including valve boxes serving the area. Agency Utility plans shall be researched and the "recorded: u/g Utility data shall be shown.

7. On all surveys where topography only is required and there is no existing building, Street, or bounded property line within 300 feet of contemplated construction, two temporary base lines at right angles to each other with ties shall be established outside the contemplated work area. Ends of the base line shall be marked by 1 inch diameter rods driven 2 feet into the ground.

8. The topographic survey shall show the "as drilled" location of each boring and test pit. Refer to "Subsurface Investigation Requirements" in Section 2.3.7.

9. When wetlands, watercourses, or other waterbodies occur within the survey area, their limits shall be shown. Wetlands shall be delineated by a soil scientist. Refer to "Surficial Soil Investigation Requirements- Wetlands Delineation" Section 2.3.6.8.

2.3.6.5 Legend

A legend shall be provided

2.3.6.6 Consultant's Responsibilities

The consultant shall be responsible for including all general survey requirements in the survey proposal requests. In addition, the survey proposal requests shall indicate certain specific requirements such as a specific orientation, specific scale, a specific datum, etc., that complies with requirements previously mentioned. The surveyor is not the one to determine orientation, scale datum etc.

2.3.6.7 Submittals

One mylar of the competed survey must be submitted to the applicable DPW Team of the DPW prior to the project manager approving payment for the survey. Final mapping to be prepared in AutoCAD latest release. Surveys shall be provided in the Connecticut State Plane Coordinate System, feet, North America Datum of 1983 (horizontal), and North American Vertical Datum of 1988 (vertical). The completed survey shall also be submitted in an electronic format on a compact disk and submitted to:

Jeff Bolton, Environmental Analyst
Technical Services – Environmental Planning
165 Capitol Avenue, Room 275
Hartford, Connecticut 06106
Phone: (860) 713-5706
Email: jeffrey.bolton@po.state.ct.us

2.3.6.8 Surficial Soil Investigation Requirements – Wetlands Delineation

Wetlands shall be delineated by a registered soil scientist (having a minimum of 3 years professional experience in soil science) in accordance with both Section 22a-38, CGS (Inland Wetlands Act), and the current federal delineation method, (Corps of Engineers Wetlands Delineation Manual).

2.3.7 SUBSURFACE INVESTIGATION REQUIREMENTS

2.3.7.1 GENERAL

1. The purpose of subsurface investigations are to provide sufficient data to properly evaluate conditions relative to design or construction situations for structure, site and utility work.

2. Subsurface investigations shall comply with the State Building Code for this project and the additional requirements included herein.

3. While no permits are required, all requirements that are necessary for permits shall be complied with.

4. Subsurface data, whether existing or new, should be obtained for any building, additions, site work, etc.

5. For borings, they shall generally be completed according to the requirements of the Connecticut Department of Transportation (DOT), as to methods, sampling, etc.

2.3.7.2 PROGRAM REQUIREMENTS

1. Subsurface investigations shall extend below footings to a depth where the intensity of the footing pressure will have a negligible effect on the soil. In addition, if borings encounter refusal, whether boulders, cemented soils, ledge rock, etc., several of them shall extend a minimum of five feet below the lowest required excavation elevation.

2. Subsurface investigations shall be made for site work if excavation will be required, or where unsuitable, unstable or highly organic materials might occur in construction areas.

3. Subsurface investigations may require seismic or other types or programs to determine limits of materials that are unsuitable or that may cause additional construction costs.

4. If construction is to occur below existing grades, (elevator pits, floors, pavements, sumps, etc.), groundwater observation wells hall be installed with provisions for periodic readings from the time of completion until Contract Documents are submitted.

5. Investigations shall be so located that minor revisions to proposed construction will not require extrapolation of data.

6. Where piles are anticipate, several borings, using driven casing as opposed to drilled casing, shall be completed. Driving criteria and blow counts on casing are to be recorded.

7. Prior to design of pile foundations an Investigation and Report shall be prepared in conformance with Pile Foundations of the requirements of the State Building Code. A Geotechnical Engineer shall be engaged for only large and/or complicated foundations.

2.3.7.3 SPECIFIC REQUIREMENTS

1. The subsurface investigations "As Drilled" locations shall be determined by a licensed land surveyor. Elevations shall be based on the project datum. A location plan sealed by the surveyor shall be submitted with the subsurface investigation report, unless done as a part of a separate surveying contract, in which case the survey information shall be provided to the subsurface investigation contractor for inclusion in the report.

2. Subsurface investigation shall be performed under the supervision of a licensed engineer. Complete visual descriptions of all materials, certified by a licensed engineer well versed in the soils engineering field, shall be recorded in the investigation report. Soils descriptions shall be according to ASTM D 2488, with the description of the type of material, except for topsoil, limited to the definitions or combinations thereof of Part 3 of ASTM D 2488. Rock descriptions shall include type, condition, and if cored, the % recovery and the Rock Quality Designation.

3. All subsurface investigation data and test results shall be on the Design Development Drawings.

4. For borings, a standard sample shall be obtained form ground surface. Also, several 18" test pits shall be excavated to verify the depth of topsoil and construction suitability of the surface soils.

5. Proposals are to be in a unit price format with estimated quantities provided by the consultant.

2.3.7.4 CONTRACT DOCUMENT REQUIREMENTS

1. The complete subsurface data shall be included on the contract documents. The investigation locations shall be indicated on a plan and tied to existing permanent features that are to remain.

2.4 BUILDING – CODE REVIEW

2.4.1 DPW Checklist for Permits, Certifications and Approvals (DPW form #330) supplements the Consultant Procedure Manual. The Code items on the Checklist are shown below. The Checklist lists each permit by agency and the phone number for the permit contact. The Consultant shall review each code requirement to determine if it is applicable to the project. Furthermore, the Consultant shall coordinate with the appropriate agency(ies), complete all necessary application forms, and submit the code permit(s), certificate(s), and/or approvals for the project.

For specific direction, regarding design and construction documents requirements, see the Department of Public Safety and the Department of Public Works specific items and associated instructions.

.1 Building Information Form
Data in the Building Information Form (DPW form #311) shall be included on the contract drawings. This form is available from your PM or the DPW web site.

.2 Connecticut State Building Code
Information pertaining to the current Connecticut State Building Code can be obtained from the Office of the State Building Inspector's web site.
http://www.state.ct.us/dps/DFEBS/OSBI/TechServ/Codes.htm

.3 Connecticut Fire Safety Code & all other Fire Safety Regulations & Codes
Information pertaining to the current Connecticut State Fire Code can be obtained from the Office of the State Marshal's web site.
http://www.state.ct.us/dps/dfebs/OSFM/regs/regs.html

.4 Modifications to Code Requirements
Forms and information pertaining to modification requests can be obtained from the Office of the State Building Inspector's web site for the following:

- Request for Modification Instruction Sheet
- Request for Modification of the State Building Code
- Request for Accessibility Exemption of the State Building Code
- Request for Approval for Inclined Stairway Chair Lifts, Vertical or Inclined Wheelchair Lifts and Limited Use, Limited Access Elevators (LULA)

http://www.state.ct.us/dps/DFEBS/OSBI/TechServ/Bldgmod.htm

.5 Modifications to the Connecticut Fire Safety Code

- Request for Modification/Relief of the Requirement of the Connecticut Fire Safety Code can be obtained from the Office of the State Fire Marshal's web site:

http://www.state.ct.us/dps/DFEBS/OSFM/.htm

.6 Modification Request Procedure

.1 The requirements and procedures to request a modification to the current codes are as follows: The need for modification(s) to the appropriate codes shall be identified and submitted by the A/E (through the DPW Project Manager) at the Schematic Design Phase. All modification requests for DPW projects must be submitted to DPW Code Unit for review. The DPW Codes Unit will forward the completed request to OSBI and OSFM.

.2 The A/E shall complete the appropriate Request for Modification Form and shall be identified as the applicant, except for the "Handicap

Exemption Request Form" where DPW will be the applicant, and shall provide the notarized signature.

.3 The A/E shall submit the Request for Modification with all supporting documentation (two complete sets) to the DPW Project Manager.

.4 The DPW Codes Unit will review the proposed modification package for completeness and transmit the request to the State Building Inspector (SBI) or State Fire Marshal (SFI) as appropriate.

.5 The A/E shall be responsible for all efforts necessary to obtain a resolution to the request for modification.

.6 **Caution**. If approval or disapproval of the request for modification is not received prior to the submittal of the Reproducible Bid Documents a delay in the "sign off" approval by the DPW code reviewer may occur that could adversely effect the project time schedule.

.7 If the request for modification is disapproved the A/E will be responsible for all delays and changes necessary to produce the construction documents on time and in compliance with the requirements of the codes.

.7 Code Authority Jurisdictions

A DPW project may fall under one of three code enforcement jurisdictions:
1) The Office of the State Building Inspector/Office of the State Fire Marshal (OSBI/OFSM) has authority for projects that exceed the threshold limit (see definition below) and for all projects designated as Connecticut State University System 2020 Projects (CSUS 2020*)
2) The DPW code Unit (DPW CU) has authority over all non-threshold projects and non CSUS 2020 projects.
3) Joint DPW CU – OSBI/OSBM = Example: A project that involves a new threshold limit addition along with renovation of the existing building will have joint oversight. OSBI/OSFM will have jurisdiction over the threshold limit addition and DPW CU will have jurisdiction over the remainder of the project.

[* CSUS 2020 projects are a project authorized by "Connecticut State University System Infrastructure Act".]

.8 Effective Code date

The applicable codes for OSBI/OSFM and DPW Code Unit projects are as follows:

- OSBI/OSFM Projects - the applicable codes shall be the codes in effect on the date of the application for a building Permit to the State Building Inspector.
- DPW Code Unit Projects - the applicable codes shall be the codes in effect at the project bid date.

.9 "Threshold Limit" Structures (definition)

Pursuant to the requirements of Section 29-276b, C.G.S. the term "Threshold limit" is defined and shall apply to any new structures or additions that **exceed the limits** that follow:

Height: 4 stories, 60 feet high.

Clear Span: 150 feet in width.

Floor Area: 150,000 square feet total gross floor area.

Occupancy: 1,000 persons.

Use Group: **I-Institutional**

I-1 Residential Care	150 Beds or persons
I-2 Incapacitated Care	150 Beds or persons
I-3 Restrained, Jails andAsylums	150 Beds or persons

R-Residential

R-1 Residential - Hotel/Motel - Single structure with 200 rooms

R-2 Residential – Multifamily - Single structure with 100 dwelling units

S-Storage

Parking structures with 1,000 cars

S-1 Moderate Hazard	250,000 square feet
S-2 Low Hazard	250,000 square feet

.10 Requirements for all projects:

.1 ICC Plan Review Forms

The A/E shall complete all applicable ICC Plan Review Forms and submit them to the DPW-Project Manager. The DPW-Project Manager shall include these forms with the Building Permit application package to the State Building Inspector. These forms are available from:
International Code Council (ICC)
4051 W. Flossmoor Road
Country Club Hills, Illinois 60478-5795
Tel. (800) 214-4321 or at: http://www.iccsafe.org

2. Statement of Special Inspections

The A/E shall include with his contract documents submittal a Statement of Special Inspections prepared by the structural engineer of record. The DPW-Project Manager shall include the Statement of Special Inspections with the application for a building permit to the State Building Inspector.

3. Building Information Form

The Design Phases requires that the Building Information Form (DPW form # 311) be included on the drawings to be submitted for review and approval.

~~4. Certificate of Completion~~ = Form no longer used

5. Fire Alarm System Requirements

A Fire Alarm System Inspection and Testing Certification and Description form shall be prepared for each system (see NFPA 72/currently enforced edition). Refer to the "Checklist for Permits, Certifications, and Approvals" (DPW form # 330).

6. Tests

All tests shall be conducted in accordance with the Manufacturers Testing Recommendations. Refer to Division 1 Section 01400 "Quality Control".

7. System Documentation (Fire Alarm)

Every Fire Alarm system shall include documentation, which shall be delivered to the Department of Public Works Representatives upon final acceptance of the system. An owner's manual or manufacturer's installation instructions will cover all system equipment, as detailed in Division 1 Section 01400 "Quality Control".

8. As-Built Drawings (Fire Alarm):

The Contractor will produce two sets of as-built drawings and specifications for the fire alarm system, indicating the location (and programmed address, if applicable) of all devices and appliances, the wiring sequences, wiring methods, connection of the components, and sequence of operation of the protective signaling system as installed, shall be given to DPW representatives. This shall be in Accordance with NFPA 72. Refer also to Section 01700 "Contract Closeout".

9. Connecticut State Demolition Code

The State Demolition Code is codified in Sec. 29-401 through Sec. 29-415 inclusive of the Connecticut General Statutes. Sec. 29-404 states that the local building official shall administer the State Demolition Code. Refer to "Demolition" Section 2.4.9 of this Manual.

.11 Requirements for "Non-Threshold" Structures

All existing buildings and all new structures or additions to existing buildings that are below or meet the threshold limit shall be in compliance with the requirements as follows:

- The applicable codes for non-threshold limit structures shall be the codes in effect on the date of bid.

.1 Certificate of Compliance (Non-Threshold Buildings)

Prior to bid, the design professional shall complete and submit PART-"1" Design Phase of the Certificate of Compliance (DPW form #715) to certify that the documents have been designed in accordance with the current codes. The Department of Public Works requires that the Certificate of Compliance be submitted with the Reproducible Bid Documents.

Prior to occupancy of the building, the design professional shall complete "PART 2 – Construction Completion" of the Certificate of Compliance (DPW form #715) and submit it to the DPWPM.

The DPW PM will be responsible for obtaining sign-offs from the General Contractor, DPW Code Unit, and DPW Commissioner on the Certificate of Compliance. The DPW PM will forward a completed copies of the Certificate of Compliance to DPW Code Unit and the State Building Inspector.

Note: The Certificate of Substantial Completion (DPW form #781) and the Certificate of Compliance, Part 1 and Part 2, shall be completed, approved and signed by DPW Deputy Commissioner of Design and

Construction prior to the user agency move-in and the occupancy for its intended use

.2 Certificate of Substantial Completion
This Certificate of Substantial Completion (DPW form #781) is issued when the project has reached a stage that all the construction work is completed and only a minor punch list has been developed. The project can be occupied for its intended use. At this point all the warranties and guaranties take effect.
This certificate is further defined in paragraph 1.18 of the "General Conditions of the Contract for Construction" Section 00700 of the contact documents.

.3 Certificate of Acceptance (**Non-Threshold Buildings**)
The Certificate of Acceptance (DPW form #782) is issued when the contractor has completed all the construction work. We have substantial completion and or beneficial occupancy. There could be a minor punch list that does not impact the tenant or using agency. There most likely is paper work remaining to complete preventing the issuing of the certificate of completion. The final payment has not been processed at this time.

This Certificate of Acceptance starts the official clock for claims against the State of Connecticut as outlined in the Connecticut General Statutes.

This certificate is further defined in paragraph 1.15 of the "General Conditions of the Contract for Construction" Section 00700 of the contact documents.

.4 Certificate of Occupancy (Non-Threshold Buildings)
A Certificate of Occupancy is not issued for those project not exceeding the statutory threshold limit. The Certificate of Compliance is completed in lieu of it for such projects.

.12 Requirements for "Threshold Limit" Structures and Additions to Existing Buildings
All new structures or additions to existing buildings that exceed the threshold limit shall comply with the following requirements in addition to the other code requirements for threshold limit buildings.

.1 Building Permit (Threshold Buildings)
The A/E shall prepare and the DPW-Project Manager shall submit the Building Permit Application form and three (3) copies of the plans and specifications through the DPW Codes Unit to the State Building Inspector for review and approval.

OSBI/OSFM will review the documents for compliance with the State Building Code and Fire Safety Code. Per statute, the State Building Inspector shall issue a building permit within thirty (30) days of the date of application for the permit, in part or in whole, or deny the application for a permit.

If there is no response at the end of the thirty (30) days review period the A/E shall contact the State Building Inspector to obtain the status of the

application for the building permit. The A/E shall be responsible for all efforts necessary to obtain a permit.

.2 Third Party Structural Review (Threshold Buildings)
The DPW Project Manager shall arrange for an independent engineering consultant to review the structural plans and specifications and include the review with the application form for a building permit.

.3 Certificate of Compliance (Threshold Buildings)
Prior to submission of the Building Permit Application the design professional shall complete PART "1" – Design Phase of the Certificate of Compliance (DPW form #715) to certify that the documents have been designed in accordance with the current codes. The Department of Public Works requires that the Certificate of Compliance be submitted to the DPW PM with the Reproducible Bid Documents.

Prior to issuance of a Certificate of Occupancy by the State Building Inspector the design professional shall complete and submit PART "2 – Construction Completion" of the Certificate of Compliance (DPW form #715) to the Department of Public Works. The DPW PM shall forward a completed copy of the Certificate of Compliance to the State Building Inspector and to the DPW Code Services Unit.

.4 Certificate of Occupancy (Threshold Buildings)
The General Statutes of Connecticut requires that no state building or structure erected that equals or exceeds the threshold limits shall be occupied or used in part or whole until the State Building Inspector has certified the building or structure is in substantial compliance with the provisions of the state building codes and regulations.

Upon submission of the Certificate of Compliance and satisfaction of any other requirements imposed on the project, the State Building Inspector will issue a Certificate of Occupancy for the building.

2.4.2 CULTURAL RESOURCES

2.4.2.1 Protection of State- Owned Historic Properties

State-owned resources that have been determined to be historic properties are protected under the Connecticut Environmental Policy Act (CEPA). The CEPA process attempts to minimize or to avoid an adverse affect on cultural resources, particularly properties listed on the State Register of Historic Places. CEPA regulations mandate State agencies prepare environmental classification documents and to coordinate the development of facilities with the **Historic Preservation and Museum Division** of the CT Commission on Culture & Tourism.

2.4.2.2 Guidelines for the Rehabilitation of Historic Buildings

Rehabilitation of historic buildings is outlined in "The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Revised 1990)", which are available from the project manager at the Department of Public Works or online at: http://www.cultureandtourism.org/ click on the HISTORY tab, under Hot Topics, click on Historic Restoration Fund and Cultural Capital Grant Guidelines & Applications click on Standards for Rehabilitations.

Any building or site that is listed on the National Register or State Register of Historic Places shall be submitted to DPW for review by the Historic Division for compliance with these Standards. The design shall incorporate all directions given by the Historic Division as the approved budget allows. All work by the Architect/Engineer for Historical Submissions shall not be considered an additional service to the basic A/E contract.

2.4.2.3 Environmental Review for Impact to Architectural and Archaeological Resources

Notice will be sent to the Historic Division for all projects for an evaluation of the potential impact on cultural resources under the provisions, of the Connecticut Environmental Policy Act (CEPA). Typically, a copy of the minutes for the "scope of work meeting" with the Agency and the A/E will be sent to the Historic Division. Note that in order for a determination to be made the Historic Division will need a street address for buildings, and often a location map. Certain projects that involve ground disturbance in archaeologically sensitive areas may require a survey.

When a CEPA document is prepared the Historic Division will be contacted for review comments. The DPW-Project Manager has access to the building list of state-owned properties and the indication of an Historic building or location. However, this inventory may contain errors and omissions and should only be used as a preliminary indicator for the presence of cultural resources.

Contact: Historical Architect
CT Commission on Culture & Tourism
Historic Division
One Constitution Plaza
Second Floor
Hartford, CT 06103.
Tel. (860) 256-2800
Fax 860 256-2811
Web site: http://www.cultureandtourism.org/ than click on HISTORY

2.4.3 ARTWORK

2.4.3.1 GUIDELINES FOR ARCHITECTS/ENGINEERS

The State of Connecticut has adopted regulations (Sec. 4-131a-1 through 4-131a-13 and as amended by Sec 4b-53-1 to 46-53-4)) that certain bonded projects open to the public will have 1% of the bonded funds allocated to enhancement of State buildings with quality works of art by living professional artists and craftsmen. The purpose is to provide the citizens of Connecticut with an improved public environment. This work includes but is not limited to, fresco, mosaic, sculpture and other architectural embellishment or functional art created by a professional artist. Work of art does NOT mean landscape architecture or landscape gardening.

The works of art are funded through the Department of Public Works (DPW) in conjunction with the Connecticut Commission on Culture and Tourism (CCT). The Art budget line item is 1% of the construction estimate.

It is the responsibility of the A/E to assist with the art work site selection with communication through CCT. CCT will select the artist(s), through its selection process. A first stage committee (site-committee), comprised of representatives of CCT, the Agency, DPW and the A/E will determine the best locations in the project where artwork may be incorporated. The type of artwork(s) will be a type as determined by the second art committee, (the site committee and additional arts professionals) as well as the selection of the actual artist(s). CCT will negotiate the artist's contract(s), which will be processed through the DPW Contracts Unit. The DPW-Project Manager will have oversight on the full process.

The A/E will be responsible for coordination and installation of the artwork into the building design. All services such as electrical power, lighting, anchors, etc. shall be included in the bid documents. If any additional costs (change orders) are incurred between the artist and the general contractor the cost will come from the artist funding.

2.4.3.2 The Architect/Engineer shall, as mentioned above, do the following:

- Recommend specific sites for artwork and the scale and type of artwork considered most appropriate.
- Consult with the selection panel on the type of artwork and location.
- Maintain a close working relationship with the artist.
- Installation of the artwork shall be overseen by CCT.
- Assure that all service requirements for the artwork are included in the design documents and that the artwork is efficiently and expeditiously installed.
- The Architect/Engineer is invited to attend art review meetings and will be given a vote on the Art Selection committee. Fee for coordination services shall be included in the A/E's basic fee.

2.4.3.3 CONTACT INFORMATION: (FOR ANY ADDITIONAL INFORMATION REQUIRED)

Connecticut Commission on Culture & Tourism
ATTN: Tamara Dimitri, Program Specialist
One Constitution Plaza, 2nd Floor
Hartford, CT 06103
(860) 256-2800 (Main number)
(860) 256-2811 (Fax)
(860) 256-2720 (Direct line)
tamara.dimitri@ct.gov
Web site: http://www.cultureandtourism.org/ than click on ART

2.4.4 ENERGY ISSUES

2.4.4.1 Life Cycle Cost Analysis

Purpose of Life Cycle Cost Analysis
Connecticut General Statutes (CGS), Sec. 16a-38, requires that a Life Cycle Cost Analysis (LCCA) be performed by design professionals for all State owned or funded new buildings, additions or renovations, in order to evaluate all reasonable alternate designs for life cycle cost effectiveness.

LCCA Determination Request
All State funded projects are required to submit a Life Cycle Cost Analysis Determination Request Form (DPW form # 310F) to the Department of Public Works (DPW). The data shall be evaluated by the DPW Chief Engineer to determine if a full LCCA is required for a given project. The DPW-Project Manager will distribute the forms to the A/E at the initial scope meeting. The A/E shall then return the completed forms as early as practical in the programming/schematic design phase, so the DPW can determine if a full LCCA will be required.

Life Cycle Cost Analysis
When required, the Architect/Engineer must prepare and submit a full LCCA in the manner required under CGS 16a-38, and specified in the guidance document LCCA Guidance Document and utilize the Life Cycle Cost Analysis Form developed by DPW. Energy Goals shall be consistent with ASHRAE/IES 90.1-1999 *Energy Efficient Design of New Buildings except New Low-Rise Residential Buildings*, and/or the Connecticut State Building Code.

The LCCA package will include:

- A narrative description including at least three different types of heating, cooling, ventilation, domestic water heating, and lighting systems to be evaluated;
- Complete economic calculations for each alternative;
- Recommendations for system selections. The recommendations should include information on the best warranty for the systems and materials being proposed, and any comments provided by the agency and/or DPW.

The economic calculations will employ reasonable and documented economic factors (discount rates, fuel cost inflation rates, etc.). Some freeware (such as BLCC5, published by the Federal Energy Management Program (FEMP), include federal economic data models. (http://www.eere.energy.gov/femp/techassist/softwaretools/softwaretools.html) Current facility energy costs should be used as a baseline when available.

DPW Technical Services Unit will issue LCCA review comments. The DPW Chief Engineer will provide the final approval of all LCCA packages. Any changes in the design after such approval will require a new LCCA package to be submitted.

2.4.4.2 Energy Conscious Design

There are several programs available from the utilities that provide financial incentives to include energy efficient materials and systems in a project. These programs cover activities from new construction and major renovations (Energy Conscious Construction – CL&P; Energy Blueprint – UI) to equipment replacements and minor improvements (Custom Services – CL&P; Energy Opportunities –UI). DPW actively participates in the programs from both Connecticut Light & Power (CL&P) and United Illuminating (UI).

All A/Es **ARE REQUIRED** to participate in the programs for which their project qualifies. The A/E **IS REQUIRED TO** attend meetings and provide the data and analysis required by the utility to insure the maximum incentive for the state is accomplished. The A/E shall identify, in each section of the technical specifications, the items associated with a utility agreement. The A/E is responsible for verification that the materials and systems installed meet the requirements of the agreement for the project.

The primary contact person for implementation of the programs is the DPW Project Manager. The facility's utility account representative, if one is assigned to the facility, is the utility's initial point of contact. The following are additional contacts associated with the utility programs:

Contact:

Northeast Utilities
The Connecticut Light & Power Company
Program Administrator
PO Box 270
Hartford, CT 06141-0270
Telephone: (860) 832-4805 or FAX: (860) 832-4700

United Illuminating
Program Administrator
PO Box 1564
New Haven, CT 06506
Telephone: (203) 499-2025 or FAX: (203) 499-2800

2.4.5 MATERIAL TESTING LABORATORIES

1. The Department of Administrative Services (DAS) secures costs for testing services in a 3 year contract. All of the Testing Companies are certified by the National Voluntary Laboratory Accreditation Program (NAVLAP). The DAS seeks qualified testing services from laboratories through Requests for Proposals (RFP) on an annual basis. Labs that are interested in qualifying for the DAS list should contact Tina Constanzo at (860) 713-5068 to apply for pre-qualification.

2. All Testing Companies will be pre-approved by DAS. Their contract will be for 3 years, subject to review as necessary. Therefore no negotiations are necessary and an accurate cost for services can be budgeted. Purchase Orders will be issued for specific projects, tasks, and dollar amounts. The purchase order will typically be for the duration of the construction contract.

3. In order to simplify the process of requesting testing services for projects there are two items that you and your PM must make. First is to determine what types of testing services the project will require. This can be determined by the A/E or CA or DPW or a combination thereof. The Second issue is to determine who is best suited to provide that service. This will be determined by the processing of "Project Managers Request for Testing Services" DPW form #702. Form #702, when needed, will be issued during construction (Refer to "Contract Start Up" Section 2.5.6.1 and "Actual Field Work Starts" Section 2.5.6.2, in this manual)

4. **DPW Testing Services Evaluations**: Each laboratory is evaluated based on their overall past performance, quality of work, response level and cooperation. The cost, quality testing reporting response is also maintained as part of the evaluation by DPW.

2.4.6 ELEVATOR INSPECTION BY OSBI – BUREAU OF ELEVATORS

2.4.6.1 GENERAL

Acceptance of any elevator within the State of Connecticut is the responsibility of the Office of State Building Inspector, (OSBI) Department of Public Safety, Bureau of Elevators. They have established a listing of common reasons for non-acceptance of new elevator installations. This list is as follows:

2.4.6.2 MOTOR ROOM

- Improper door lock on motor room door.
- Improper motor room door, usually must be 1 ½ hour B label. (Fire rating of motor room and hoistway are under BOCA and set by the local building official).
- Improper disconnect, must be interlocked both positions. (a circuit breaker may be used.
- Circuit breaker or disconnect must be lockable and sealable.
- Use of motor room for non-elevator equipment, piping, wiring, etc.
- Use of motor room as a thoroughfare.
- Presence of access panels in ceilings or walls. (A suspended ceiling with non-elevator equipment above would be considered an access panel)
- Improperly guarded or unguarded lighting.
- Telephone wiring must be in conduit within the motor room.

2.4.6.3 HOISTWAY

- Voids or gaps in hoistway walls or door bucks.
- Improper top of car clearances.
- Hoistway must be vented in accordance with BOCA.
- Fire rating of hoistway must be in accordance with BOCA requirements.
- Concrete block hoistways must have solid block or 3 courses of brick above and below each rail bracket insert.
- The use of a friable spray-on rating material in the motor room or hoistway. (must be sealed off from elevator equipment)

2.4.6.4 PITS

- Water in pit – pit must be kept in a clean, dry condition
- Pit outlets must have GFI protection.
- Pit lights must be guarded.
- Sumps or sump holes must have securely fastened covers.

2.4.6.5 SPRINKLERS IN HOISTWAY

When sprinklers are installed in hoistway or motor room, a means of automatically disconnecting main line power before or upon the application of water must be provided. Most common means has been by a shunt trip breaker actuated by heat detectors located adjacent to each sprinkler head. Within 24 inches. Improper top of bottom run-by on hydraulic installations. Elevator cab must have means of voice communications to a 24 hour manned station or service.

This above list does not cover all possible problems that may be encountered, it merely reflects some of the common issues that the inspector has experienced.

End

2.4.7 FIRE PROTECTION AND WATER SUPPLY

All buildings that require sprinkler and/or standpipe systems shall conform to the codes and DPW requirements, which are as follows:

- Connecticut State Building Code.
- Connecticut State Fire Safety Code.
- DPW Consultants Procedure Manual.
- FM Global Technical Bulletins

Shop Drawings: Sprinkler system shop drawings and hydraulic calculations must be stamped by a professional engineer licensed in the state of Connecticut and must include the DPW project number. Two (2) sets of information [Old version = Division 01 "Submittals" Section 01300 or Division 01 "Substitution Procedures" Section 01 25 00] shall be submitted to the State's Insurance Carrier (SIC), and one (1) set shall be submitted to a) the State Fire Marshals (SFM) office for projects exceeding statutory threshold limit or b) to DPW Code Unit for those projects which do not exceed statutory threshold limit.

STATE INSURANCE CARRIER (SIC):
FM Global
Factory Mutual Insurance Company
P.O. Box 9102 500 River Ridge Drive
Norwood, MA 02062
Tel: (781) 440-8000 or FAX (781) 440-8742
Contact: Costa Terzides (781) 440-8204 or Jeannette Dantona (781) 440-8245

Exceeds Threshold
STATE FIRE MARSHALS (SFM):
Deputy State Fire Marshal
1111 Country Club Road, PO Box 2794,
Middletown, CT 06457
Tel: (860) 685-8350

Does not exceed threshold
DPW Codes Unit (DPW CU)
State Office Building - DPW
165 Capitol Avenue, Room 275
Hartford, CT 06106
Joseph Cassidy, PE (860) 713 5705

Before the shop drawings are submitted to SIC or Code (either SFM or DPW), the A/E and/or the A/E's fire protection consultant must review the sprinkler design for compliance with the code and DPW requirements. SIC review comments will be addressed to the designated DPW Project Manager. The designated DPW Project Manager shall confirm to the A/E any changes required by SIC/SFM. The A/E is responsible for changes that result from the SIC and/or Code (SFM or DPW) required during construction. The DPW Chief Engineer will decide any disputed issues between the SIC and the A/E.

CONSTRUCTION: The State Insurance Carrier (SIC) requires two- (2) weeks prior notice of a sprinkler system acceptance test.

WATER SUPPLY

The A/E shall provide as part of the design development review submittal water supply technical data. The data must be obtained within the past two years from a water-flow test approved by DPW. If data is not available the A/E shall cause such a test to be conducted to acquire the information. The water test shall conform to the procedures described in the National Fire Protection Association (NFPA) Standard 291, "Fire Flow Testing and Marking of Hydrants", (specific edition currently enforced by codes); or the procedures described in the NFPA Handbook "Testing of Water Supplies". The results of the water flow test shall be plotted in the form of a three-point curve to ensure accuracy of the test results. The water flow test report is to be included in the "Sprinkler" section of the specifications.

2.4.8 TELECOMMUNICATIONS AND DATA SYSTEMS

2.4.8.1 GENERAL

The State of Connecticut accepts the ***"EIA/TIA Building Telecommunications Wiring Standard"*** as the standard to be used in the design and implementation of voice and data wiring systems for new and renovated State facilities. These standards have been designed for use by state agencies, space planners, budget planners, architects and engineers, business and facilities managers, communication personnel, vendors and manufacturers that provide services to the state.

The Connecticut State University (CSU) and the Judicial Department may have additional standards and requirements for their facilities.

A copy of the minutes of the initial scope meeting for projects that have telecommunications requirements shall be sent to the Department of Information Technology (DOIT) and the Department of Public Works (DPW) the addresses of which is as follows:

Department of Information and Technology (DOIT)
Communication Services - Room 328
340 Capitol Avenue
Hartford CT 06106
Tel. (860)566-6250

Department of Public Works (DPW)
Technical Services Unit – Room 265
Hartford, CT 06106
Tel. (860) 713-5722

2.4.8.2 RESPONSIBILITY OF THE A/E, DOIT/CONSULTANT, DPW AND AGENCY

Architect/Engineer

Site Raceway Distribution: Design the underground raceway/duct-bank distribution system, to accept the incoming Telephone Service. Coordinate requirements with SNET, DOIT, DPW and the Agency. Obtaina confirmation with regard to all service details from the utility (see Checklist for Permits and Approvals).

Telecommunication Rooms: Provide space within the building for the main telephone room (BMDF), Intermediate telephone rooms (IDF), and Computer Rooms, to accept the voice and data cabling systems and equipment. Rooms shall conform to the requirements of the EIA/TIA- 568A/569 standards. A/E is to coordinate requirements with DOIT and DPW-TSU.

Building Raceway Distribution: Provide an empty conduit system including cable troughs for all horizontal and vertical runs between the BMDF, IDF', computer rooms and all work stations to allow for the installation of the voice, data and video cable systems. A/E is to provide riser diagrams and coordinate requirements with Agency, DPW-TSU and DOIT. Include all raceway distribution requirements outlined in EIA/TIA 569 "Telecommunications Pathways and Spaces", under a separate electrical section, (i.e., **Section 16750 – Telecommunication Raceways and Distribution Systems**).

Telecommunications Cabling Distribution: Telecommunications cabling design and installation shall not be part of the A/E's design responsibilities, except for the Connecticut State University (CSU) projects, in which case the A/E shall deliver a complete system of raceway and cabling installation to the CSU system. Such design and installation shall be performed under the supervision of DOIT or the Agency's and DPW's On-Call Telecommunication Consultant". Cabling design and installation shall conform to the requirements of EIA/TIA 568-A "Telecommunications Cabling Standards". Include cabling requirements under a separate technical specification section, (i.e., **Section 17000 – Telecommunications Cabling Distribution Systems**).

DOIT/Consultant

Evaluate telecommunications needs with state agencies and DPW-Technical Services Unit.

Establish design criteria to accommodate agency needs.

Present design criteria to the architect/engineer for implementation into the contract documents.

Provide technical assist to the architects/engineers during the planning and early phases of the design.

Prepare bid documents for wiring, voice and data systems including wiring types, installation, terminations, and testing. Specify voice and data equipment.

Provide quality assurance during construction, witness-testing procedures and approve installations for voice and data systems.

DPW -Technical Services Unit

Review A/E submissions during design stages.

Provide limited support services to DOIT and the Agency as needed.

Agency

Compile agency telecommunications needs.

Coordinate with the DPW-Electrical Engineering and OIT to establish the scope of the telecommunication system.

Assist A/E and DOIT/Consultant in the location of voice and data outlets for the user stations.

Participate in inspections with DOIT/Consultant.

Participate in the system acceptance procedures.

2.4.9 DEMOLITION

The are two types of demolition; 1) Selective interior demolition (see 2.4.9.1 below) and 2) Complete demolition and removal of a building and its structure (see 2.4.9.2 below).

2.4.9.1 SELECTIVE INTERIOR DEMOLITION

Refer to the General Requirements Section 01120 Renovation/Demolition Project Procedures" and edit as appropriate.

2.4.9.2 STATUTES THAT PERTAIN TO DEMOLITION

1) The current, 1999, CT Building Code Supplement states:
107.1.2 State agency exemptions. A state agency shall not be required to obtain a building permit from the local building official. A state agency shall obtain a building permit for construction or alteration of state buildings or structures from the State Building Inspector in accordance with the provisions of section 29-252a of the Connecticut General Statutes.
Exception: State agencies shall obtain demolition permits from the local building official in accordance with the provisions of sections 29-401 through 29-415 of the Connecticut General Statutes.

2) DPW demolition of state buildings do not exempt the state from the local building official authority.
Sec. 29-404. (Formerly Sec. 19-403e). Local building official to administer State Demolition Code. The local building official shall administer sections 29-406 to 29-413, inclusive. Each such official shall have experience in building demolition, construction or structural engineering, shall be generally informed on demolition practices and requirements and on the equipment necessary for the safety of persons engaged in demolition and the public and shall have a thorough knowledge of statutes and regulations of the department concerning demolition. Such official shall pass upon any question relative to the manner of demolition or materials or equipment to be used in the demolition of buildings or structures.

3) DPW is required to post public notification for demolition of state buildings.
Sec. 4b-63. (Formerly Sec. 4-36b). Demolition of state buildings. Notice to municipalities. (a) Whenever the state plans demolition of a state building or structure, and the site upon which such building or structure is located is not to be used for a state project already authorized and funded, the Commissioner of Public Works shall first notify the chief executive officer of the municipality wherein the building or structure to be demolished is located, by registered or certified mail, at least sixty days prior to the public advertisement of the bid for services necessary to accomplish such demolition.
(b) The municipality wherein the building or structure is to be demolished may, within the period prior to the public advertisement of such bid, submit a bid to said commissioner for the purchase of such state building or structure, and the commissioner may accept such bid provided the use which the municipality intends for the building or structure is compatible with state needs and programs. In the event the municipality intends to move the building, the costs thereof shall not be paid by the state.

4) Owner must obtain a demolition permit from local building inspector:
Sec. 29-406. (Formerly Sec. 19-403g). Permit for demolition of particular structure. Exemption. Waiting period. (a) No person shall demolish any building, structure or part thereof without obtaining a permit for the particular demolition undertaking from the building official of the town, city or borough wherein such building or part thereof is located. No person shall be eligible to receive a permit under this section unless he furnishes to the building official written evidence (1) of financial responsibility in the form of a certificate of insurance specifying demolition purposes and providing liability coverage for bodily injury of at least one hundred thousand dollars per person with an aggregate of at least three

hundred thousand dollars, and for property damage of at least fifty thousand dollars per accident with an aggregate of at least one hundred thousand dollars; each such certificate shall provide that the town or city and its agents shall be saved harmless from any claim or claims arising out of the negligence of the applicant or his agents or employees in the course of the demolition operations; (2) in the form of a certificate of notice executed by all public utilities having service connections within the premises proposed to be demolished, stating that such utilities have severed such connections and service, and (3) that he is the holder of a current valid certificate of registration issued under the provisions of section 29-402, except in the case of (A) a person who is engaged in the disassembling, transportation and reconstruction of historic buildings for historical purposes or who is engaged in the demolition of farm buildings or in the renovation, alteration or reconstruction of a single-family residence, or (B) an owner who is engaged in the demolition of a single-family residence or outbuilding, as provided in subsection (c) of section 29-402. No permit shall be issued under this section unless signed by the owner and the demolition contractor. Each such permit shall contain a printed intention on the part of the signers to comply with the provisions of this part. (b) In addition to the powers granted pursuant to this part, any town, city or borough may, by ordinance, impose a waiting period of not more than ninety days before granting any permit for the demolition of any building or structure or any part thereof.

5) Owner Notification of adjoining property owner(s), of demolition, by registered or certified mail:
Sec. 29-407. (Formerly Sec. 19-403h). Notice to adjoining property owners. No person shall commence any demolition operation unless he first notifies each adjoining property owner by registered or certified mail at such owner's last address according to the records of the assessor of the city, town or borough in which such demolition operation is planned.

2.4.9.3 COMPLETE DEMOLITION AND REMOVAL OF A BUILDING AND ITS STRUCTURE
Prior to preparing the final contract documents an inspection of a building or wing that is to be demolished shall be accomplished. This inspection shall be requested through the DPW Technical Services Unit and any findings or reports shall be included in the contract documents.

(Contractors responsibility as is detailed in Technical Section 02060 "Demolition of Entire Structure" shall be added to the contract documents, and modified as necessary by the consultant)
A "Demolition/Notification Form" shall be completed and postmarked or hand delivered to the Connecticut Department of Public Health at least ten (10) days prior to the start of demolition as required by the Regulations of Connecticut State Agencies (RCSA), Section 19a-332a-3. This form is available from the Department of Public Health web site: http://www.dph.state.ct.us/BRS/Asbestos/asbestos_program.htm under "Demolition Notification".

Each demolition notification must be accompanied by a fee of twenty-five ($25) dollars. A check in that amount made payable to **"Treasurer, State of Connecticut"** must be submitted with the notification form. If it is determined that during demolition, asbestos abatement that disturbs more than ten (10) linear or twenty-five (25) square feet of asbestos will occur, then an asbestos abatement notification form shall be filed with the Department of Public Health, in accordance with §19a-332a-3 of the RCSA. This form shall be submitted at least ten days prior to the start of asbestos abatement. An asbestos abatement notification form filed in this situation shall satisfy the filing requirements of the demolition notification. **In all cases of demolition, one and only one notification form (either for demolition or for asbestos abatement, as applicable) shall be sufficient to satisfy the DPH regulatory requirements.**

2.4.10 HAZARDOUS MATERIALS

A. The consultant's work product shall not require or suggest the use of hazardous materials or products containing hazardous materials. If hazardous material cannot be avoided, i.e., there is no substitute product, then the product must be identified as containing hazardous material and the State must be notified of that fact in writing.

   All products and systems supplied to the State as a result of a purchase by D.P.W. will be certified that, to the best of the supplier's knowledge, there are no materials that are classified as hazardous materials being used within the assembly. Hazardous materials include, but are not limited to, products such as asbestos, lead and other materials that have proven to cause a health risk or are defined as hazardous under any state, federal, or local law, rule or regulation affecting health and human safety or the environment.

B. If there is any indication that an area of the building might have asbestos containing materials, the DPW has a procedure to aid the project during construction with term contractors who will be made available. The process is to request a "Hazardous Material Inspection" through the DPW Technical Services Unit. The Hazardous Material Inspection Request (DPW form # 010F) can be used by either DPW or an Agency to request asbestos removal, Lead testing, or Indoor or Outdoor Air Quality through the DPW Technical Services Unit.

C. Within the Contract Document Manual (plans and specs prepared by the Consultant) there shall be requirements that mandate any hazardous materials be removed or isolated in accordance with State procedures. Reference Division 1 "Alteration Project Procedures" Section 01120. This would include Asbestos Containing Material, Lead, products Containing Persistent Bioaccumulative Toxic Chemicals" (PBT's) such as Polychlorinated Biphenols (PCB's), Di-2-ethylhexyl Phthalate (DEHP), and Mercury: Furthermore, prior to bidding - any renovation of an existing structure should have a Report prepared and included in the contract documents informing all persons electing to do work with the State, so they are aware of the presence of different hazardous materials and to take standard industry care of the matter.

D. The one exception where DPW does not remove asbestos is on roof projects. DPW require that consultants add a specification that is available through your DPW PM for the Removal of Asbestos-Containing Roofing Material and is designated section 07080 Asbestos Removal Roof. This section is available in an electronic version with both printable notes and non-printable notes. Check with your DPW Project Manager for the latest version of the specification or it will be available on the DPW web site.

2.4.11 BUILDING COMPONENTS

The following are DPW preferred guidelines for various building components. Consultants should follow these guidelines for detailing construction. The old CSI numbers have been replaced with the latest CSI numbering system. The items covered include:

Division 3 CONCRETE
Division 4 MASONRY
Division 5 METALS
Division 6 WOOD, PLASTIC and COMPOSITES
Division 7 THERMAL AND MOISTURE PROTECTION
Division 8 OPENINGS
Division 9 FINISHES
Division 10 SPECALITIES
Division 11 EQUIPMENT
Division 12 FURNISHING
Division 13 SPECIAL CONSTRUCTION
Division 14 CONVEYING SYSTEMS
Division 21 FIRE SUPPRESSION
Division 22 PLUMBING
Division 23 HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)
Division 26 ELECTRICAL
Division 27 COMMUNICATIONS - Voice and Data Raceway Distribution
Division 28 ELECTRONIC SAFETY and SECURITY
Division 31 EARTHWORK
Division 32 EXTERIOR IMPROVEMENTS
Division 33 UTILITIES

2.4.11.1 Division 3 CONCRETE

All wire mesh, expanded metal, chairs shall be hot dipped galvanized or be plastic coated Floor surfaces may vary from a true plane no more than 1/8" in 10 feet.

2.4.11.2 Division 4 MASONRY

Brick Veneer Backup
Steel stud backup for brick veneer is not favored by the State. This method of construction has not proved its durability to the satisfaction of accepted authorities. Concrete Masonry Units (CMU) or Autoclaved Aerated Concrete (AAC) Masonry Units are preferred.

Brick
Brick shall meet or exceed ASTM C 216 requirements, Grade SW. ASTM C 216 permits the average strength of 5 brick to be 3000 psi with no one unit less than 2500. The State recommends brick have an average strength of 5000 to 8000 psi. ASTM permits maximum water absorption by 5-hour boiling to average 17%. The State prefers brick in the 6% to 10% range. Brick shall be tested in accordance with ASTM C 67 as "not effloresced". Brick with characteristics less than those stated must be proven durable in severe weather climates by inspection of a building using the brick that is at least 7 years old. The Initial Rate of Absorption (IRA) is not required by ASTM, however, the State requests this test in accordance with ASTM C 67. Brick test reports and certifications are required as part of a typical project submittal. The State also prefers at least one material property test for conformance of actual units delivered to the site.

CMU Exterior Veneers and Single Wythe Units
CMU for exterior use shall be classified as Heavy Weight (greater than 125 pcf) or Medium/Heavy Weight (about 115 pcf), have a minimum compressive strength of 3000 psi and be made of a dense exterior mix design. Lightweight pumice or other aggregates that

are susceptible to water penetration and resist integral water repellants are not recommended. Lightweights units may be used if a tight matrix design is used that meets the criteria of the Expanded Clay and Shale Institute, has proven durability and is warranted and certified by the manufacturer. All exterior CMU shall include a high-grade integral water repellant (IWR). Mortar for exterior CMU shall have a compatible water repellant. A water repellant coating applied to the completed CMU wall is also recommended. CMU veneers and single wythe walls shall have joint reinforcing (9 gage ladder is sufficient) at 16" o.c. and must be shown on the drawings and specifically stated in the specifications. Control joints shall be located at intervals of 16' to 20' and as recommended by industry standards. Other exterior coatings, electrometric coatings and paints or combinations of coatings with IRW may also be used with approval by the State.

Ties, Anchors, Reinforcement
Corrugated sheet metal ties or anchors for masonry veneers are prohibited. Fixed and adjustable ties and anchors made of 3/16" diameter steel are recommended instead. Beam and column anchors shall be specified by the architect and designed by the engineer to meet the requirements of the code. It should be noted that column to masonry anchors may not be required if masonry walls are spanning vertically and do not require horizontal support. The code minimum for joint reinforcing is W 1.7 (#9) wire. W 2.8 (3/16") wire is not required unless the engineer has incorporated the wire size into the structural design of the wall. 3/16" wire can cause problems with maintaining joint size and coursing heights. Ladder type wire is satisfactory for most uses and shall be used in all grouted and reinforced CMU and masonry walls. Do not use truss type joint reinforcing in grouted and reinforced walls as it interferes with grout and rebar placement.

All of these products shall be hot dip galvanized after fabrication in accordance with the MSJC Specifications for Masonry Structures (ACI 530.1-02, ASCE 6-02/TMS 602-02) Section 2.4F. Use only hot dipped galvanized products, both exterior and interior.

Stone Panel Veneer
Stone panel veneer shall have a minimum thickness of 1 1/4" thick and meet the requirements of the stone manufacturer. A licensed engineer shall design stone thickness, anchors, supports, joints and related accessories. Anchors shall be fabricated from 304 alloy stainless steel, brass or bronze.

General
Masonry veneers (brick CMU, dimensioned stone) shall have a minimum air space of 1 ¾", with 2" the preferred minimum. The cavity is to be kept clean to permit efficient evacuation of moisture via the weep holes.

Provide open vertical joint weeps with vents, mesh type weep vents, honeycomb vents or equal type weeps immediately above flashing at a frequency of 16" O.C. Do not use tube or rope type weep holes. Provide weeps for air venting at the top of walls also. Provide mesh-type mortar drainage inserts that are designed to break mortar dropping, to allow water and moisture to flow out the weep holes and allow air circulation at all flashing locations. The use of mortar drainage inserts should not be misunderstood to mean additional mortar droppings are permitted in the air space. Use skilled masons trained to install brick veneers. Do not use pea stone as a drainage medium. Start masonry not less than 6" above finish grade. Provide metal drip edge at all flashing locations. Provide vertical and horizontal expansion joints as required and recommended by the International Masonry Institute and industry standards.

Review Moisture Control Guidelines and Details by the International Masonry Institute

Dampproofing / Waterproofing
Coat the exterior face of the CMU backup with an asphalt emulsion (either spray or trowel applied) in strict accordance with the manufacturer's recommendations. Install rigid cavity insulation in accordance with the manufacturer's recommendations. Tape or seal all joints of rigid insulation.

Cleaning/Restoration
Clean brick in accordance with masonry industry standards and as recommended by the manufacturer. Use clean potable water and bristle brushes for cleaning new brickwork. Power washing of new brickwork is also acceptable if approved by the manufacturer and in accordance with industry standards. If more aggressive measures are needed, the architect must approve them.

Cleaning agents and methods for cleaning existing brick shall be selected by a DPW - accepted authority and then tested on an inconspicuous part of the structure in the presence of DPW representatives. Modify this requirement to suit the interests of other agencies if the structure is, for instance, on The National Register of Historic Buildings. Never specify sandblasting of existing brick.

The existing mortar of a historic masonry building must be analyzed so that new mortar for restoration work can be matched to the original. Contact the State Historic Preservation Office (Refer to "Cultural Resources Section 2.4.2 of this Manual).

QUALITY CONTROL
Use only mason contractors and craftworkers that are skilled and have performed work of equal scope to that specified on the project. It is desirable to engage contractors and craftworkes (bricklayers, cement masons, PCC installers, stone setters, foreman, supervisors, project managers and all trowel related workers) that have received or are involved in certified continuing education and training programs for the trade. Such programs shall meet the State's standards and be equal to those offered by the International Masonry Institute.

2.4.11.3 Division 5 METALS

Lintels and Railings
Hot-dip galvanize steel lintels and exterior railings after fabrication. Specify that lintel surfaces left exposed after installation and railings (interior and exterior) receive one primer and two finish coats of exterior grade enamel paint.

Do not use ferrous metals in toilet rooms, kitchens, natatoriums or other high humidity areas unless they are hot dip galvanized after fabrication. Alternatively use aluminum or type 302 or 304 stainless steel as suited to the given application.

Handrails
Acceptable materials are stainless steel, Alum. Or Color Galvanized with no open ends.

Expansion Joints
Interior floor covers shall be metal having no rubberized cork, urethane, vinyl or other joint filler. The vase member shall be designed to set the cover plate flush with the finish floor and have secure anchorage

2.4.11.4 Division 6 WOOD, PLASTIC and COMPOSITES

Rough Carpentry
Preservative treatment for all wood in damp areas on in contact with earth, concrete, masonry, plaster or roofing

Architectural Woodwork
Specify architectural woodwork to be shop fabricated in accordance with The Architectural Woodwork Institute Premium Grade standards except for minor items or assemblies where a lower standard will provide an acceptable appearance for the given application.

Unless there is a compelling reason to do otherwise, specify cabinets (casework) to be fully shop finished according to an A.W.I. standard. It is recommended that plastic laminate clad casework have the interior surfaces, including shelves, finished with laminate of the types suited to the applications.

Specify every item of cabinet hardware by name, number and manufacturer. Specify finish.

Roof Sheathing
Do not use fire-retardant treated plywood as roof sheathing under asphalt or wood shingles. It has been discovered that when the temperature exceeds 120 degrees (F), the material delaminates and is no longer capable of supporting the assumed loads.

2.4.11.5 Division 7 THERMAL AND MOISTURE PROTECTION

Waterproofing / Damp-proofing
Below grade foundation walls shall be damp proofed and or waterproofed to meet design requirements and or site conditions.

Roofing Requirements
Roof Types for Various Pitches:

0" to 1/2"/12" 4-ply tar and gravel, modified bitumen, 60 mil. or reinforced 45 mil. single ply membranes.

1/2" to 1"/12" 4-ply asphalt and gravel, modified bitumen or single ply membrane as above.

1" to 4"/12" metal interlock roof panels, modified bitumen or single ply membrane as above.

4"/12" and greater shingles, slate, tile, metal interlock or single ply membrane when approved by manufacturer.

Warranties
Refer to Division 1 General Requirements Section 01740 "Warranties and Bonds" for the warranty requirements for different roofing types.

Clearances
Locate and place A/C units, fans, skylights, hatches and other roof-mounted items so that they may receive at least 8" high base flashing. Provide at least 24" clearance between the item and adjacent construction unless the design dictates otherwise and at least 12" under the item.

Do not place ducts or conduits directly on roofing. Support these items above the roof in conformance with details and specifications by the roofing materials' manufacturer.

Miscellaneous
Limit penetrations to the least possible number.

Provide walkway pads to roof-mounted equipment that requires servicing. Use pad approved by the roofing materials' manufacturer.

If an IRMA type roof is used, either attach the insulation to the supporting construction or hold it in place with manufacturer-approved materials/methods to prevent the insulation from floating.

Polyvinyl chloride flashings are not acceptable Roofing System Justification

As part of the Schematic Design phase, the A/E shall submit a brief written description of the roofing type proposed for the project supported by reasons based on the following considerations:

Structure	Deck Type(s)	Anchoring	Insulation
Roof Load(s)	Existing Conditions	Guarantees	Cost
Slope(s)	Application	Reflectivity (color)	Flashings
Penetrations	Drainage		

Exposure: Local Atmosphere, Grease, Oil, Exhausts, Chemicals
Fire safety: Torch Application

Problems
Sufficient attention has not been given to the problems associated with the re-roofing of an occupied building. Fumes given off by heated bitumen is the most common problem. It is recommended that all parties involved in the roofing of an occupied building confer before starting the work to provide open channels of communication.

Suggested remedies are: do the work when the building is unoccupied; keeping kettles covered; turning off fresh air intakes; keeping doors and windows closed.

Include a statement in the roofing section regarding end-of-day roofing conditions; i.e., treatment of edges of insulation and roofing.

Removal of Asbestos Materials
If an existing roof that is to be replaced or repaired has been identified by DPW to contain asbestos materials, insert "Asbestos removal Roof" (refer to "Hazardous Materials Section 2.4.10 this Manual) into A/E specifications. The section may be inserted directly into the specification with project and section number added.

Exterior Insulation Finish Systems (EIFS)
Do not use any of these systems "DryVit" and "STO", for example, where this material would be within reach of vandals. This effectively limits their use to building soffits.

Concealed Gutters
Do not use concealed gutters if at all possible. If used to preserve design integrity with adjacent buildings, fit the gutters with scuppers to discharge rain water outboard.

2.4.11.6 Division 8 OPENINGS

Hollow Metal Doors and Frames
In general, it is required that frames be SUAW (set up and welded). For existing openings, frames shall be KD (knock down) with mitered corners and positive attachment devices to produce hairline uniform joints.

Fabricate exterior doors with 16 gauge, galvanized steel faces, and frames with 14 gauge galvanized steel. The door surface shall be perfectly flat, showing no oil canning or weld spots. Interior doors shall be 18 gauge with 16 gauge frames. These gauge sizes do not apply to Department of Correction (DOC) projects.

Refer to DOC for requirements for security door testing.

Wood and Mineral Core Fire Doors
Exterior Wood doors are not recommended unless they are a replacement on an historic structure.

The construction components in wood and mineral core fire door shall not be less than following requirements:

- Top and bottom rails shall be not less than 5" wide solid wood.
- Styles shall be triple plywood to provide secure anchorage for screw fasteners.
- Lock blocks shall be not less than 5" x 12" solid wood.

Finish Hardware
In general, hardware for renovated buildings and for additions to existing buildings shall be the same as used in the existing building, including finish. This applies to locksets, exit bolts and closers so that keying shall be consistent, among other things. Order not less than 1-1/2 pair of hinges per door leaf up to 7'0" high and one additional for each additional 30" in height or fraction thereof. Use only commercial grade hardware.

Require that closers and other surface mounted hardware on mineral core doors be though-bolted, or specify that these doors have 51/2" top and bottom rails and lock blocks.

Do not use in-floor closers or concealed-in-head closers unless there are compelling reasons for there use.

For jail or prisons, specify detention hardware (locks for cells, for example) with the cells and related items in Division 13.

Windows
Windows shall provide a reasonable measure of energy efficiency that is, at minimum, consistent with the required "U" values of the particular building. Use thermally broken metal windows with insulating glass. Use tinted and Low-E glass only where their use can be justified.

2.4.11.7 Division 9 FINISHES

General
Do not use single layer gypsum board on partitions in areas where vandalism or other abuse could be expected. Select materials for these areas that will not fail due to the expected level of abuse. Use materials, if available, that offers a multi-year warranty against abuse. "Failure" means change to the degree that the material can no longer serve its intended function.

Walls of toilet rooms and rooms which house water-using fixtures in institutions and other high-use facilities must be designed with the assumption that there will be water leaks. Do not use moisture-resistant gypsum board. Instead, use cement based backer board ("Durock", for example) as the substrate. The use of steel studs should be discouraged; experience has shown that they readily deteriorate in the presence of moisture starting where the stud is cut or where screws penetrate their zinc coating. Alternate support could be wood studs, codes permitting. Strong consideration shall be given to using concrete masonry units with a ceramic tile or two-part epoxy finish.

Use hard surface floors, such as ceramic tile or two-part epoxy, and marble thresholds, at toilets and bathrooms.

Specify a minimum 3-coat paint application. Select paints suited to the given substrate. Also, specify dry film thickness for each coat.

Commercial Carpet Guidelines

Direct Glue Down Application:
(a) Carpet Type.
Tufted: 100% C-F nylon, level loop with permanent anti-static and soil hiding features
Face Yarn: Antron III, also IV, Zeftron or Ultron
Yarn Ply: 3 (min.)
Face Yarn Weight: 28 oz./sq.yd.
Total Weight: 67 oz./sq.yd.
Dye Method: Yarn
Backing: Primary-Synthetic Secondary-Jute or woven Synthetic
Recommended Traffic Designation: Heavy

(b) Installation: Cement to the floor, following an approved seaming diagram submitted by the carpet contractor, with an adhesive recommended by the carpet manufacturer. Carpet pile direction shall be consistent, and installed in the largest possible lengths and widths to minimize the number of cross and length seams.

(c) Seams: Seams should not be perpendicular to openings. Seams occurring at doors, parallel to doors, should be centered under doors. Cross seams should be made with a waterproof contact adhesive. All workmanship and the entire installation must meet the standards prescribed by the manufacturer and the carpet and rug institutes recommended standards and procedures.

Tackless Application With Cushion
(a) Carpet Type. Same as Direct Glue-Down Applications (above)

(b) Cushion: Carpet cushion shall consist of hair and jute. No seconds or imperfections will be acceptable. Hair and fiber cushion shall be of all new selected, clean washed cattle hair and fiber, moth proofed. Weight not less than 40 ounces per square yard, and shall be Crown "Stanton" or approved equal.

(c) Installation: Install following an approved seaming diagram submitted by the carpet contractor over a layer of cushion. Use tackless strips around room perimeter. Spot-cement cushion to floor to prevent rolling and shifting. Cushion seaming should be laid out at right angles to carpet seams.

(d) Seams: Seaming is the same as in Direct Glue-Down Applications (above) except all parallel seams shall be hot-melt taped using Bond, Taylor, Roberts or equal, applied as recommended by the carpet manufacturer.

Requirements of Regulatory Agencies
(a) Flammability: Carpeting shall have an average critical radiant flux of greater than or equal to 0.45 watts per square centimeter N.F.P.A. 253, and specific optical density of 450 or less, N.F.P.A. 258. Manufacturers' test reports encompassing fire hazard classification, sound absorption, and static control qualities shall be submitted to the State of Connecticut before installation.

Guarantees

(a) The carpet contractor shall re-stretch carpet, repair seams, joints and edges, if required, once after the original installation is completed at no additional charge to the State of Connecticut. The exact time for this work shall be left to the discretion of the using State Agency.

(b) The carpet contractor shall submit a 3-year written guarantee assuring the State of Connecticut that the carpet will remain tight and free of wrinkles; and to correct any other condition which may appear due to faulty installation procedures. Refer to Division 1 General Requirements Section 01740 "Warranties and Bonds" for the warranty requirements for carpeting.

2.4.11.8 Division 10 SPECIALTIES

2.4.11.9 Division 11 EQUIPMENT

Also refer to Equipment Guidelines, Section 2.1.5 this Manual

2.4.11.10 Division 12 FURNISHING

2.4.11.11 Division 13 SPECIAL CONSTRUCTION

2.4.11.12 Division 14 CONVEYING SYSTEMS

Elevators

The State Elevator Inspector has noted in the past, Fire Protective Spray on coatings have had a flaking problem clogging elevator machinery equipment causing elevator malfunctions. When using spray on fireproofing, be aware of past performance problems. Recommend other alternatives in the elevator machine rooms. An "Elevator Agreement" shall be included in all specifications. This agreement allows the proper diagnostic tools to become the property of the State of CT. An electronic copy of the "Elevator Agreement" will be forwarded to the Consultant along with other specification sections for doing DPW projects.

2.4.11.13 Division 21 FIRE SUPPRESSION

General

Sprinkler Systems, Standpipe Systems, Fire Pumps and Water Supplies shall be designed in accordance with the State Building Code and Connecticut Fire Safety Code.

Whether the Engineer provides only a performance specification or a detailed fire protection system drawings, the following design requirements must be included in the specifications.

All of the information outlined in NFPA 13, 13D or 13R (Specific editions enforced by Codes) shall be provided on the shop drawings.

If early suppression fast response sprinkler heads are used, the information on roof slope **shall** be stated on the shop drawings.

Separate hydraulic calculations shall be provided for areas such as shops, kitchen and mechanical rooms, which generally have a higher design density than the remainder of the facility.

Walk in freezers and coolers shall be provided with dry pendant sprinkler heads.

A minimum of an 8-PSI safety cushion shall be provided **in the hydraulic Calculations**, if this **requirement alone** will result in having to install a fire pump, **consult with DPW**.

Mechanical Rooms shall be designed for Ordinary Hazard Group 2.

In general, incidental storage areas should be designed for Ordinary Hazard Group 2. Incidental storage is situations such as the storage of kitchen supplies or office supplies.

Elevator shafts shall be sprinkled in conformance with NFPA 13 **or as revised in the current state codes.**

Electrical rooms shall be protected in conformance with NFPA 13 **or as revised in the current state codes**.

Areas such as woodworking and machine shops should be designed for Ordinary Hazard Group 2, in conformance with NFPA 13 **or as revised in the current state codes**.

Inspectors test outlets, main drains and floor control test assembly drains, shall discharge directly to the outside.

Sprinkler protection shall be provided for the area underneath overhead doors (when the door is in the open position); in addition to ceiling sprinkler protection.

Earthquake bracing shall be provided as required by the State Building Code. NFPA 13 guidelines shall be followed. The shop drawings shall show proper arrows, reflecting location and type of bracing.

All sprinkler, fire pump, smoke detector and other fire alarms should transmit either to a central or remote station or **whenever possible** to a 24 hour constantly attended station (i.e., guard station).

Sprinkler system alarms shall include valve tamper, water flow, low temperature, and for dry pipe systems low air pressure. Alarm, at a minimum should be zoned per floor and large floors may be subdivided into more than one zone.

NFPA 20 describes and lists alarms to be provided for fire pumps and engine drive controllers.

Shop drawings submitted for approval shall include complete hydraulic calculations and shall be stamped by a professional engineer licensed in the State of Connecticut.

Detailed information shall be given, on the engineer's contract drawings, in reference to:
Operations such as spray painting, shops and storage.

Storage information should include a description of products stored, packaging material for product, storage arrangement (i.e., racks, palletized, etc.), storage height, aisle width, clearance from top of storage to underside of roof or ceiling, whether or not encapsulated. This includes flammable materials.

If there is a pre-action system interconnected with smoke detectors, the details of this arrangement shall be provided in the contract of how the systems are interconnected; how the systems operates and the sequence of operation.

Refer to "Fire Protection and Water Supply" Section 2.4.7 in this Manual.

2.4.11.14 Division 22 PLUMBING

2.4.11.15 Division 26 ELECTRICAL

Metal conduit shall be used for all wiring. MC cable shall only be used to connect to fixtures with MC cable lengths not exceeding 8 feet. Consult with your Project Manager if deviating from this requirement.

All fire sealant is required to fill-in wall and floor conduit penetrations.

2.4.11.16 Division 27 COMMUNICATIONS - Voice and Data Raceway Distribution

General

This Section of the Specifications shall be used by the Engineer to describe a complete raceway distribution system, for the Voice and Data communications systems.

Under this Section of the specifications, the Engineer shall specify:

The Telephone Service conduits from the Utility, or Site Distribution, to the Building Main Telephone (BMDF) Room. (NOTE: A minimum of one 4-inch active and one 4-inch spare conduit shall be specified for each project).

Vertical and Horizontal raceways between the Main Telephone Room (BMDF) and the Intermediate Phone Rooms (IDF's). (A minimum of two 4-inch conduits shall be specified).

Vertical and Horizontal raceways between the IDF rooms on each floor. (A minimum of two 4-inch conduits, or sleeves shall be specified).

Horizontal raceway distribution between the IDF's, and the workstations on that floor. See "Station Raceway Distribution" below, for additional input.

All raceway fittings, outlet boxes, junction boxes, pull boxes, etc. required for the voice and data raceway system. Standard size outlet box shall be 4" x 4" with 1" conduit raceway and pull string.

All Grounding and Bonding required by NEC Code.

All fire sealant is required to fill-in wall and floor conduit penetrations.

All Electrical & Environmental requirements for the BMDF and IDF rooms, as outlined in the State Telecommunications Wiring Standard, and directed by DPW Telecommunications.

Identify whether voice/data wiring and terminations are part of this contract or not.

Voice/data communication systems (raceways and/or wiring) shall be designed per EIA/TIA Industry standards.

Site Distribution

Site utility raceway distribution for the Telephone and Data systems shall be the responsibility of the A/E. (Provide details.)

Telephone and Data duct-banks, manholes etc. shall be coordinated with all other utilities (i.e. Electric, CATV etc.).

Installation of duct-banks, manholes, etc. shall be specified under division 2 and 3 of the contract specifications.

Station Raceway Distribution
Raceway distribution between the workstations and the IDF's may be provided in one of the following methods:

(a) Ceiling Distribution
(b) Raised Floor System
(c) Under-floor Ducts
(d) Exposed and surface mounted raceways
(e) Cellular Floor System

Unless otherwise directed by DPW, the Ceiling Distribution system, utilizing raceways, cable trays or similar cable management methods, shall be the preferred State method.

Ceiling Distribution system shall consist of:

Conduit stub-ups from outlet boxes to accessible ceilings.

Home-run conduit from outlet boxes to IDF's in Non-accessible ceilings

Surface mounted raceways, where ceilings are not accessible and where approved by DPW.

Where stub-ups are provided above the ceiling, grouping of station cables shall be placed in cable-trays, or wire-ways, back to IDF/BMDF. Engineer shall design appropriate raceway system to facilitate good cable management practices.

2.4.11.17 Division 28 ELECTRONIC SAFETY and SECURITY
Also refer to Building Security, Section 2.1.6 this Manual

2.4.11.18 Division 31 EARTHWORK

2.4.11.19 Division 32 EXTERIOR IMPROVEMENTS

2.4.11.20 Division 33 UTILITIES
Also Refer to Utility Hookups, Section 2.3.3 this Manual

2.5 Project Phases

FORWARD

2.5.0.1 Generally, a project is produced in three phases followed by delivery of the original tracings and the specification masters (Reproducible Bid Documents) to the Department of Public Works. If the project is limited in size and scope, the Department may authorize its preparation in one or two phases.

2.5.0.2 At the Schematic Design phase, the Architect/Engineer shall translate the program data into a detailed schematic illustrating the project to the degree necessary to understand its scope. The two following phases shall embody refinements of the first culminating in documents suited in every way for bidding and construction.

2.5.0.3 The phases are entitled:

- Schematic Design
- Design Development
- Contract Documents
- Bid Documents [Reproducible Bid Documents]

2.5.0.4 Proceed to the next phase only after receiving written authorization to do so. Reproducible Bid Documents may be authorized by phone.

2.5.0.5 Submit the number of copies of documents for each phase as stated in the contract between the State and the Architect/Engineer.

2.5.0.6 Prepare the specifications using the State version of the CSI format including the 5 digit Section identifiers. The outline specification required in the Schematic phase is detailed in "Schematic Design Phase Checklist" Section 2.5.2 of this manual.

2.5.0.7 The A/E will reply to all review comments if a phase is reviewed by DPW. The A/E shall have a signature and date of reply the designer responsible. Additional next stage reviews will not be initiated until the A/E responds to prior review comments. "Will comply" is not an acceptable review response. A short simple declarative sentence is required. Occasional an attached sketch is most effective. Included with each submission will be a one page synopsis of the status/program/scope of the project. This submission will represent the design professionals' best understanding of the project. Included will be typical issues being addressed such as: new construction, renovation, additions, environmental problems, traffic, historical, code items, and construction access constraints. This submission will be updated with each submission to DPW and be modified to represent the most up-to-date status.

2.5.0.8 Buildings and structures must conform to seismic requirements in the CT State Building Code. Additions and alterations to buildings or structures must be physically separated from the existing building or else one of the 3 options used; 1). Physically separate new from existing with an expansion joint, 2). Attach structural analysis to indicate existing is not made unsafe, or 3). Obtain a modification of the code from SBI. Refer to the code.

2.5.0.9 Designs containing tension stresses in masonry are not permitted.

2.5.0.10 Drawing orientation to be consistent on all plans drawings. i.e.; North is always the same direction from plan to plan.

2.5.0.11 Asbestos abatement is the responsibility of the State of Connecticut on all projects, **EXECPT** when asbestos is included in the roofing system. Refer to "Hazardous Materials" Section 2.4.10 this Manual. During the programming phase of the project, the State undertakes an investigation of the various products incorporated in the existing

building. In general we expect that this material will be totally removed, but invariably, some material will be found during the design or construction phases. We require that the Design Consultant inform us immediately if any materials are found that may appear to contain asbestos, in order for the State to arrange for its abatement.

2.5.0.12 The prime design professional is responsible for the coordination, integration and completeness of the Review Submissions. All submission (Schematics, Design Development, Contract Documents and Tracing and Masters) shall be coordinated, and reviewed by the prime design professional, and corrections completed – prior to submission to DPW. Inappropriate submission may be returned without review. If the Design Development or Contract Documents submission has received numerous comments, or the proposed "systems" require major modification, coordination or completion; a complete reprinting and resubmission of the submission shall be required.

2.5.0.13 Basic design services include the verification of the existing conditions as presented n the construction documents. The client Agency and DPW will furnish the available record drawings for the site and/or building. The A/E shall understand that record drawings may not reflect current conditions, be accurate, or be in sufficient detail for design and bidding of the proposed project. In many instances, Agencies have done building modifications, which may invalidate portions of the record drawings. Many state campuses have agency owned utility systems such as steam, sanitary sewer systems, water systems, primary electrical distribution systems, and voice communication systems. The design of new buildings or building renovations may necessitate tying into these existing systems. Survey and testing may be necessary to verify the location and capacity of the existing systems. When included, the design of the connection to the existing agency system is an important part of construction cost, and the designing effort is within the scope of the design professional's services. Project involving renovations or additions require specific, detailed knowledge of the existing systems: location, size, materials, material present condition, operating voltage, operating pressures, et. The existing condition shall be verified prior to the design development submission. The verification shall be undertaken by staff knowledgeable tin such systems. Substantial investigation is required for building renovations and additions. When extensive detailed inspection, testing services, or as-built documentation of inaccessible areas is required, these items may be additional services.

2.5.0.14 The Contract Documents and Reproducible Bid Documents submission should be **COMPLETE** when submitted (with the exception of inclusion of Division 0- to be inserted by DPW) The final coordination and corrections shall be complete. The Reproducible Bid Documents shall be ready for advertising. On a selected basis as program and schedule requirements demand, the department will on occasion submit the CD or Reproducible Bid Documents submission directly to the Bid 'Room for bidding. In these instances a cursory review may be provided by DPW and if necessary the Design Consultant will address any required changes or corrections through an addendum process.

2.5.1 Pre-design Phase

A pre-design if necessary shall be detailed as to scope and outline in a contract with DPW. The contract form may be a study contract or a standard Architect or Engineer contract detailed for the specific work required. The program and budget shall be developed at such a level to allow the Agency and DPW to request a B-100 form or a capitol project request.

See also Consultant Services Section 0.3.2.1 "Pre-design Studies" in this Consultant's Procedure Manual.

2.5.2. SCHEMATIC DESIGN PHASE CHECKLIST (Preliminary Design: 35% Completion)

Outline

1. General
2. Architectural
3. Civil
4. Structural
5. Mechanical
6. Electrical
7. Telecommunications
8. Code/Permits
9. Equipment
10. Cost

2.5.2.1 General

1. Program for the principal areas.
2. Regional area characteristics, site features: natural and man-made.
3. Vehicular and pedestrian circulation.
4. Agency needs.
5. Refer also to "Specification Requirements" Section 3.1 in this Manual.
6. Complete the "Checklist for Permits, Certifications and Approvals" (DPW form #330).
7. Modify Division 1 "General Requirements" (in short or long form) as a draft.
8. Design concepts for the mitigation measures described in any environmental document.
9. Any environmental document shall be reviewed to ensure that all agreed mitigation measures have been incorporated in the drawings and specifications.

2.5.2.2 Architectural

1. Refer to "Cultural Resources" (Historical & Archaeological), Section 2.4.2 of this Manual if the building is considered on the State Historical listing.
2. Floor Plans (1/16", 1/8", 1/4" scale or as required), must indicate overall dimensions and square feet area of each floor.
3. Elevations (sufficient to delineate the design).
4. Sections (sufficient to delineate the design), include large scale sketches, as required, to illustrate the design.
5. Approximate grade elevations.
6. Indicate floor-to-floor dimensions.
7. Indicate Fire classification (ref. "Building Information Form" DPW form #311).
8. Outline specifications, & Supplementary General Conditions.
9. Pedestrian access and circulation.
10. Parking and vehicular circulation.
11. Energy conservation measures.
12. Handicapped accessibility
13. Study model (large projects & when requested).
14. Trash removal/recycling provisions
15. Show Telecommunication, Mechanical and Electrical rooms.

2.5.2.3 Civil

1. Site or plot plan with sufficient contour lines or spot elevations to describe existing conditions and the footprint of the proposed building/s, orientated in the same direction as all other project drawings. Show past outline of foundation if previous demolition.

2. Locations of all existing utilities as per survey.
3. Comply with "Subsurface Investigation" requirements, (boring logs on plans, and sewage disposal system investigations where applicable).
4. Methods and design of the storm water management facilities and methods of disposal of sewage.
5. Source of water supply.
6. Location of roads, parking areas, existing buildings.
7. Type of subsoil, adjacent property problems if any.
8. Survey to comply with "Boundary and Topographic Survey" Section 2.3.6 in this Manual.
9. A copy of the original survey is to be included either as a base for the proposed work or as a separate drawing.
10. Proposed new underground utilities shall be shown.
11. Calculation/location of required parking spaces for disabled persons.
12. Method of Soil Erosion and Sediment Control.
13. Location of all wetlands and watercourses.

2.5.2.4 Structural

1. Proposed type of structural system with relation to indicated use-group and construction classification and design loads.
2. Any special or unusual uses or conditions anticipated.
3. Seismic requirements for additions, alterations or repairs must be physically separated from existing buildings or resolved by options as indicated in paragraph 2.5.0.8, the "Forward" of Project Phases in this Manual.
4. All live loads and concentrated loads, including values of components in formulas for snow, wind and seismic forces.

2.5.2.5 Mechanical

1. Prepare Life Cycle Cost Analysis determination form with heating and cooling "Block" loads.
2. Floor Plans must show locations for equipment rooms, boiler rooms, and main duct shafts. Show locations for main duct and piping runs. Also, show water, gas, storm and sanitary entry points with inverts. Use of felt marker on architectural schematic drawings is acceptable.
3. Verification from utility companies that peak anticipated demand (pressure and volume) for gas and water can be provided.
4. Indicate flow diagrams for air and water systems, including major components.
5. Identify all existing major equipment or systems to be reused as part of renovation work.
6. Outline specifications: use CSI Section numbers and identify basic materials and equipment.
7. Supplemental narrative that describe the mechanical and plumbing systems.
8. Indicate the type of temperature control system to be used.
9. Indicate the minimum number of required plumbing facilities, and any special plumbing.

2.5.2.6 Electrical

1. Initial contact with electrical utility company (NU or UI) regarding source of power, type of distribution, fees for connections, etc. Refer also to Utility Connections/Easements.

2. Outline new Energy Savings Systems and/or upgrades. Refer to "Energy Issues" Section 2.4.4 of this Manual.
3. Identify proposed site and/or building voltage distribution, i.e., 4160, 277/480, 120/208) and anticipated loads.
4. Identify types of lighting, both interior and exterior, including light levels, types of lamps, ballasts, etc.
5. Identify special systems, i.e., emergency lighting, fire alarm, standby power generation, paging, CATV, CCTV, security, etc.
6. Identify existing systems and major equipment to be re-used in renovation work.
7. Identify main switchgear room and auxiliary electrical rooms on architectural floor plans.
8. Submit outline specifications with CSI section numbers, and identify basic materials, equipment and systems.
9. Provide telecommunications requirements as in "Telecommunications" Section 2.5.2.7 in this Manual.
10. Consider use of peak load shave and co-generation with standby generator.
11. Add special energy savings lighting controls where practical.
12. Renovation work: verify scope of work with DPW and agency. Visit site to confirm scope.

2.5.2.7 Telecommunications

1. Identify source of incoming Telephone Service, i.e., SNET, agency, overhead, underground, etc. See Telecommunications.
2. Identify location of BMDF and IDF rooms on architectural drawings.
3. Identify proposed method of horizontal and vertical raceway and cable distribution for voice and data communication systems.
4. Identify whether installation of voice and data wiring is or is not part of the contract.

2.5.2.8 Code/Permits

Codes

The need for Modification to code requirements shall be identified and submitted by the A/E at the schematic design phase.

1. Complete the "Building Information Form" (DPW form #311) and include the information on the drawings. (do not include in the specs- the drawings are DPW's record for all projects)
2. Submit "ICC Plan Review Record" worksheets for buildings that exceed the threshold limit only, or as directed by DPW. Forms may be obtained on www.iccsafe.org Refer to "Code Review" Section 2.4.1 of this Manual for a definition of "threshold limit".
3. Submit occupant/plumbing calculations from State Plumbing Code requirements.
4. The plans must indicate all rooms/spaces that has an occupant load of 50 or more persons. The total occupant load for each floor shall be indicated on the floor plans. Separate plans with occupancy loads may be included, if the main floor plan drawings are complex.

Permits

1. The checklist shall be submitted with the schematic design phase to the DPW designated Project Manager for all DPW Projects. Copies of the Checklist are to be sent to DPW Environmental Planning and DPW Code Services.
2. Prior to submitting a Checklist, the consultant shall ensure he is using the latest Checklist version by checking on DPW's website (www.ct.gov/dpw) under "Forms".
3. For projects requiring a DEP Inland Water Resources application, make request to the designated DPW PM and Environmental Planning that the project be on DPW's DEP Project Priority List.

4. For more detailed information regarding the Checklist and permit policies, refer to "DPW Procedures for DEP Permit Applications" Section 2.3.5

2.5.2.9 Equipment

1. No requirements at this submission.

2.5.2.10 Cost Estimate

1. The program for design shall be prepared that is within the approved budget amount. If the design appears not to be within the budget amount, the A/E shall suggest alternative approaches to reduce the cost without major revisions to the program.
2. Square or cubic unit cost estimates are acceptable at the schematic phase of the design.

2.5.3 DESIGN DEVELOPMENT PHASE CHECKLIST (Design Development - 60% completion)

Outline

1. General
2. Architectural
3. Civil
4. Structural
5. Mechanical
6. Electrical
7. Telecommunications
8. Code/Permits
9. Equipment
10. Cost

2.5.3.1 General

1. All design review items from the Schematic Design checklist, in addition to the items that follow:
2. Submit an updated "Permits Certifications, and Approvals Checklist" (DPW form #330).
3. All applicable permit applications either must be approved or in review by the regulatory agency(ies).
4. Refer to the "Specification Requirements" Section 3.1 this Manual.
5. Any environmental document shall be reviewed to ensure that all agreed mitigation measures have been incorporated in the drawings and specifications.

2.5.3.2 Architectural

1. Title sheet with small plan to show project location related to adjacent roads and streets and other structures.
2. Plot plan with project limit lines and north arrow.
3. Floor and roof plans at 1/8" scale (min.), fully dimensioned, and indicate the dimensions of all egress components, doors, stairs, aisles, passages, etc.
4. Building sections shall be as required to illustrate all construction methods.
5. Elevations: identify the materials and show dimensions and grades.
6. Reflected ceiling plans; typical and special details.
7. Door and Finish schedules.
8. Layout of equipment and furniture.
9. Handicapped – provide access provisions: doors, ramps elevators, toilets, phones, drinking fountains, emergency exits, lights, alarms, etc.
10. Indicate rated walls on floor plans and include legend.
11. Specification; translate the outline into the three part, CSI format. Use the latest CSI numbering format.
12. Supplementary General Conditions: Make first adaptation of this document to the project; include agency operational constraints and site constraints on the contractors operations and activities.
13. Prepare an accurate cost estimate based on the design development documents.
14. All architectural and engineering decisions are to be finalized by the conclusion of the DD phase.
15. Framed color perspective of project (per A/E contract); include project name, project number and A/E name.

16. A/E to provide DPW-Project Manager with the name of firm selected to prepare architectural rendering. A/E or architectural renderer to submit 8"x10" samples of the work to DPW for review and comment. The samples shall demonstrate the technique, quality and media of the proposed rendering.
17. Location, sizes, and finish schedule of Mechanical, Electrical and Telecommunication rooms. Coordinate with "Mechanical" Section 2.5.3.5, "Electrical" Section 2.5.3.6 and "Telecommunication" Section 2.5.3.7 all in this Manual.
18. Roofing – Submit an analysis of the roof systems you are considering, with a benefit analysis for each, to justify the system and the cost.

2.5.3.2 Civil

1. Exact location and elevation of building(s) shown.
2. Locations of subsurface investigations related to established existing features and subsurface investigations information.
3. Show finished grade contours, benchmark and a graphic legend. Also verify conditions at the site.
4. Locate utilities as to elevation, size and direction.
5. Show roads, parking areas and site improvements, with sections.
6. Comply with State Department of Public Health written criteria.
7. Show existing and proposed planting.
8. Show existing and proposed surface treatment and drainage.
9. Include soil erosion and sediment control/storm water pollution control plan, text, and details, and a general permit registration or individual permit, if required.
10. Proposed utility hook-ups and any easements, if needed.
11. General site work detail.
12. Ensure topographical and boundary CAD drawings comply with the standards and criteria in "Boundary and Topographic Survey Requirements" Section 2.3.6 of this manual.

2.5.3.4 Structural

1. Basement - foundation plans including foundation and wall design.
2. Floor and framing plans.
3. Sizes of typical members/ types of construction.
4. Fireproofing.
5. Indicate bottom of footing, and top of steel, elevations based upon site survey datum.
6. Seismic criteria and information per BOCA.
7. Footing schedule and basic column framing plan.

2.5.3.5 Mechanical

1. Revise life cycle cost analysis to reflect final heating/cooling loads and cost estimate. See also "Energy Issues", Energy Conscious Construction (NU), or Energy Blueprint (UI) Section 2.4.4 of this Manual.
2. Floor Plans drawn to 1/8" or 1/4" scale.
3. Complete pipe and duct layout with flow arrows on pipes and sizes for main ducts.
4. Indicate smoke walls and show fire dampers and smoke dampers. Show exterior louvers and shutters.
5. Boiler and fan rooms drawn to 1/4":1'0" min. scale. Fan room ductwork drawn "two Line". Show service areas around equipment.
6. All equipment, including equipment furnished by others but connected under Division 23 (Heating Ventilating, and Air-Conditioning), should be shown.

7. HVAC air and water flow diagrams developed to include flow quantities and motor horsepower.
8. Preliminary schedule and detail sheets. Schedules and details to be "Blocked out" and titled.
9. Roof Plan: show location and weight for all roof mounted equipment. Also show all plumbing vents and other roof penetrations.
10. Specifications in final format. All sections except equipment and temperature control sequence of operation, to be complete. Insert title sheets of sections omitted but are to be included.
11. Fire Protection section of specifications shall include hydrant "three point" flow test data. Ref. also to "Fire Protection and Water Supply" Section 2.4.7 of this Manual.
12. Sprinkler section of specifications shall include pertinent information from "Building Components", Section 2.4.11.13 Division 21 Fire Suppression.
13. The plans and specifications should be sufficiently developed to prepare a reliable cost estimate.
14. Include in the contract a provision for computer software and hardware in all equipment, components and systems to be compliant with year 2000 (Y2K), and that the complete systems be tested prior to acceptance by the owner.

2.5.3.6 Electrical

1. Site utility details for electric, telephone, CATV, Fire Alarm, Security, Data links and any other specialized electrical or electronic ties. Review design scope with Architect, DPW and Agency. Verify conditions on site. (List contact engineer and telephone number of each utility. Submit copy of Utility correspondence).
2. Power Distribution plan, to include a one-line diagram of incoming service, switchboards, transformers, panel boards, motor control centers, and other major equipment. Identify equipment, conduit and conductor sizes.
3. Lighting, power and system floor plans; show light fixtures, receptacles, motors, voice/data outlets, and conduit and conductor sizes.
4. Detail of new or upgraded emergency and life safety systems.
5. Detail standby generation system.
6. Indicate location, feeds, ratings and details of exterior/area lighting. Include a fixture and/or equipment schedules.
7. Fire alarm system: provide riser diagram and equipment locations. Include interface details with existing alarm system(s) and city or other connected lines. Visit site and submit checklist.
8. Provide equipment locations and riser diagrams for paging, CATV, CCTV, Security, voice/data, and other special systems.
9. Indicate all power distribution equipment on floor plans. Coordinate with other trades.
10. Provide specifications using CSI section numbers. Identify all equipment and systems used.
11. Provide telecommunications system needs as described in "Telecommunications" Section 2.5.3.7 this Manual.
12. Identify special requirements for computer rooms, data equipment, isolated grounds, UPS systems, oversized neutrals, special transformers, isolation panels, computer floor grounding, etc.
13. Provide connected loads for all circuits indicated on panel board schedule.
14. Indicate design foot-candle levels on the drawings.
15. Renovation work: prepare demolition drawings including confirmation and coordination of existing conditions at site. Use of "as-built" drawings without field verification will not be accepted.

16. Include in the contract a provision for computer software and hardware in all equipment, components and systems to be compliant with year 2000 (Y2K), and that the complete systems be tested prior to acceptance by the owner.

2.5.3.7 Telecommunications

1. Indicate source of telephone service on site plan. Also location and size of BMDF / IDF rooms on floor plans. See also "Utility Hookups" Section 2.3.3, coordinate with "Architectural" Section 2.5.3.2 all in this Manual.
2. Indicate location of voice and data outlets on floor plans. Coordinate locations with agency representative.
3. Show proposed method of horizontal and vertical raceway and cable distribution for voice and data communications systems. Provide one line riser diagram of voice and data distribution systems.
4. Identify needs for power, HVAC, emergency standby or UPS systems, for computer rooms, BMDF and IDF Rooms.
5. See "Building Component" Section 2.4.11.16, Division 27 Communications – Voice and Data Raceway Distribution.
6. Renovation work: verify conditions in field. Provide wiring and terminations only if part of the scope of work.

2.5.3.8 Code/Permits

Codes

1. Refer to schematic design submittal and update if required.
2. Update the "Building Information Form" (DPW form # 311) on drawings.
3. At the request of the DPW Code Reviewer, a letter from the local fire chief must be submitted to confirm the open perimeter accessibility of the building and location of fire hydrants.
4. Submit Statement of Special Inspections.

Permits

1. All applicable permit applications, either must be approved or in review by the regulatory agency(ies).
2. The Checklist shall be submitted with the design development phase to the designated DPW PM for all DPW Projects. The PM shall forward Copies of the Checklist to DPW Environmental Planning and DPW Code Services. Consultant shall supply sufficient copies.
3. Prior to submitting a Checklist, the consultant shall ensure he is using the latest Checklist version by checking on DPW's website (www.ct.gov/dpw) under "Forms".
4. For more detailed information regarding the Checklist and permit policies, refer to "DPW Procedures for DEP Permit Applications" Section 2.3.5

2.5.3.9 Equipment

1. Food service: layout and details.
2. Laboratories.
3. Include in the contract a provision for computer software and hardware in all equipment, components and systems to be compliant with year 2000 (Y2K), and that the complete systems be tested prior to acceptance by the owner.

4. The equipment, components and systems includes but is not limited to, programmable thermostats, HVAC controllers, auxiliary elevators controllers, utility monitoring and control systems, fire detection and suppression systems, alarms, security systems and any other facilities control systems utilizing microchip, minicomputer, or programmable logic controllers.

2.5.3.10 Cost Estimate

1. The cost estimate shall be further developed than the schematic phase.
2. If a Construction Administrator (hired by DPW) is involved with the project the costs shall be compared and reconciled.

2.5.4 CONTRACT DOCUMENT PHASE CHECKLIST (100% Complete)

Outline

1. General
2. Architectural
3. Civil
4. Structural
5. Mechanical
6. Electrical
7. Telecommunications
8. Code/Permits
9. Equipment
10. Cost

2.5.4.1 General

1. Include all items from the schematic design and design development checklists in addition to the items as follows:
2. Specifications shall be fully developed and complete. Sections shall conform to five digits, three parts, CSI format and all cross-references sufficiently coordinated in the specification. Refer to "Unit Prices" Section 3.3 and "Specification Requirements" Section 3.1 this Manual.
3. The final submittal shall include accepted responses to all previous design and reviews comments.
4. All sources of all information shall be indicated on the drawings.
5. Subjective evaluation terms shall not be used.
6. "Checklist for Permits, Certificates and Approvals" (DPW form 330L) shall be updated, complete, and submitted.
7. Follow through with any remaining issues with the above listed permits as required.
8. The environmental document shall be reviewed to ensure that all agreed mitigation measures have been incorporated in the drawings and specifications.
9. Include an interdisciplinary coordination (use of "Redicheck" http://www.redicheck-review.com/ or equivalent) to ensure that the documents shall be consistent and in conformance of each part with all of the parts prior to submittal of the completed documents. Details of this requirement are as follows:
   - The design professional is required to perform an internal review of their documents prior to each submission. This review shall be performed by person(s) not directly working on the project. Their review comments shall be available to DPW along with the submission
   - The architect is required to submit the written results of an internal review of all of the documents along with 100% CD Phase submission for the purposes of assuring document quality control and coordination. The review shall be performed by person(s) not directly working on the project. An outside independent review is preferred.

Note:
The review or approval of, or any request for corrections to, the Design Documents by DPW or any other Project Team member shall not be construed as relieving Architect-Engineer of its responsibility for the suitability, completeness and interdisciplinary coordination of the Design Documents prepared by Architect-Engineer or its Sub-consultants. The Architect-Engineer at no cost to the Owner shall resolve any errors, omissions, or ambiguities in the Design Documents.

2.5.4.2 Architectural

1. All items listed under design development checklist.
2. Refer to "Drawing Information- General" Section 3.2 this Manual.
3. Drawings: Floor plans, roof plans, elevations, sections shall not be less than 1/8":1'-0" scale, large details as needed to understand intent of the design; fully dimensioned; all material identified. Include legends and abbreviations.
4. Key plan on each drawing for large projects.
5. Detailed expansion and control joints.
6. Elevations of all exterior surfaces including finish grades.
7. Provide as many sections as needed to show all wall conditions; typical construction; elevators; stairs; wall treatments; flashing; intersections of different materials; insulation(s); wall reinforcement; footing and foundation details.
8. Provide large-scale details sections to illustrate interrelationship of elements not shown in sections.
9. Demolition (if any) shall comply with requirements in "Demolition" Section 2.4.9 in this Manual.
10. Roofing data and details. Review of Roofing required by FM Global (DPW Insurance Carrier) Refer to Section 2.4.7 for Insurance Carrier Address.
11. Certification the design is in substantial compliance with the Connecticut Basic Building Code. The A/E is to sign and issue Part A of the "Certificate of Compliance". Refer to "Code Review" Section 2.4.1 of this Manual.
12. Final coordination of the telecommunication system with DPW-Telecommunications Unit, agency and OIT.
13. Anchorage details and spacing requirements for structures and nonstructural components due to seismic loads.

2.5.4.3 Civil

1. Contract limit lines, property line, north arrow.
2. New and existing grades.
3. Bench mark, base lines.
4. Name of surveyor and date of survey.
5. Survey: statement of accuracy.
6. Linework shall clearly differentiate between existing and proposed work.
7. Landscape, details, site furnishings, topsoil, fills.
8. Roads and parking lots including drainage, radius, details, walks, stairs etc.
9. Site lighting.
10. Refer to "Utility Hookups" Section 2.3.3 in this Manual.
11. Include subsurface investigation information on the drawings.
12. Septic system.
13. Details shall comply with "Connecticut Department of Transportation, Bureau of Highways, Standard Details, which shall be modified for Department of Public Works lump sum bid requirements by elimination of conditional requirements.
14. The designer is to determine project conditions and shall eliminate all conditional, subjective or interpretive requirements within the project documents by either deletion or replacement with specific, definitive and/or measurable requirements.
15. Consultant must coordinate all new or upgraded Utilities, including necessary easements, with the appropriate Utility company(s).
16. Ensure topographical and boundary CAD drawings comply with the standards and criteria in Section 2.3.6 of this manual.

2.5.4.4 Structural

1. Foundation plan (plans, sections, footings, special ties, piles, etc.) including slab bases, footing drains and under-drains, retaining walls and site work walls and stairs foundations.
2. Floor and roof plans and details.
3. Framing details.
4. Columns and reinforcement schedules.
5. Design Loads for walls, floors, roof, wind, seismic, etc.
6. Fireproofing.
7. Elevations of footings (based on site survey datum), walls, top of steel, finished floor.
8. Caissons. The bottom elevation of each caisson is to be indicated on the drawings. Piles. The estimated length for each group/cluster.
9. Anchor details and spacing requirements for structures and nonstructural components due to seismic loads.

2.5.4.5 Mechanical

1. Plans, details and flow diagrams. All pipe and ductwork sized.
2. Indicate air inlet/outlet devices, neck size, velocity (CFM) and type.
3. Show details and locations for all seismic sway bracing, expansion compensation, anchors and guides.
4. Completed schedules, legends and general notes.
5. Large scale plans of boiler, equipment, and main toilet rooms, food service areas, laboratories, and similar type areas.
6. Provide riser diagrams for plumbing, fire protection, multistory duct and pipe.
7. Final specifications with all equipment sections and temperature control sequence of operation.
8. Include in the contract a provision for computer software and hardware in all equipment, components and systems to be compliant with year 2000 (Y2K), and that the complete systems be tested prior to acceptance by the owner.

2.5.4.6 Electrical

1. Complete site distribution drawings, including electric, telephone/Data, CATV, CCTV, fire alarm, security and lighting systems. Detail underground duct-banks, manholes, luminaire posts. Verify on-site conditions. Coordinate design with other utilities.
2. Complete one-line power diagram, or power riser diagram. Indicate all major power equipment, transformers, panelboards, motor control centers, etc., with conduit and conductor sizes. Identify distribution voltages. Complete primary and secondary system details.
3. Complete all lighting and power floor plans. Indicate all fixture designations, circuit numbers, receptacles, voice/data outlets, motors and temperature control equipment.
4. Indicate electrical switchgear, panelboards, transformers and major equipment on the floor plans. Verify clearances are as required by all codes.
5. Detail emergency and life safety systems, and/or other special or unique systems with details of components and methods of installation.
6. Indicate all system outlets on floor plans and on riser diagrams for fire alarm, CATV, CCTV, paging, security, computer, voice and data systems, complete with conduit and conductor sizes where applicable.
7. Complete all schedules and riser diagrams.
8. Complete final specifications. Do not include "size as required", "to be determined at installation" etc., either on drawings or in specifications.

9. Anchorage details and spacing requirements for structures and non-structural components due to seismic loads.
10. Telecommunications requirements. Refer to Contract Document - "Telecommunications" Section 2.5.4 in this Manual.
11. Include in the contract a provision for computer software and hardware in all equipment, components and systems to be compliant with year 2000 (Y2K), and that the complete systems be tested prior to acceptance by the owner.
12. Consultant must coordinate all new or upgraded Electrical Utilities, including necessary easements, with the appropriate Utility company.

2.5.4.7 Telecommunications

1. Provide correspondence from telephone utility company outlining method of service and charges if any. See "Utility Information".
2. Final voice and data raceway for cable distribution systems, including outlet locations and conduit sizes.
3. Final design of telecommunications rooms, and computer room(s) per wiring standard. Agency and DPW-Telecommunications Unit requirements.
4. Complete conduit riser diagram for voice/data systems, including all required sleeves.

2.5.4.8 Codes/Permits

Codes

1. Refer to schematic design "Code Requirements" Section 2.5.2.8 update information, if required.
2. Update the "Building Information Form" (DPW form # 311F) on drawings if required.
3. Fire-resistant ratings of structure elements and locations of penetrations for electrical, mechanical, plumbing and etc. to be shown.
4. Fire protection systems plans and specifications must conform to NFPA 13 and 14; and current State Building and Fire Safety Codes. Refer also to "Fire Protection and Water Supply" Section 2.4.7 in this Manual.
5. Fire alarm tests for all non-threshold buildings shall conform to "Fire Alarm/Acceptance Testing Procedures" as detailed in the General Requirements Section 01400 "Quality Control".
6. A statement of Special Inspections (title must be "Statement of Special Inspections) to be filled out and submitted by the Consultant to DPW.

Permits

1. Follow through with any remaining issues with the above listed permits as required.
2. If there are any outstanding permit issues, notify the designated DPW PM and DPW Environmental Planning in writing.
3. All necessary approvals for construction related permits must be obtained prior to bidding.

2.5.4.9 Equipment

1. Equipment layouts etc. Same as basic stage but with more detail.
2. Include in the contract a provision for computer software and hardware in all equipment, components and systems to be compliant with year 2000 (Y2K), and that the complete systems be tested prior to acceptance by the owner.
3. The equipment, components and systems includes but is not limited to, programmable thermostats, HVAC controllers, auxiliary elevators controllers, utility monitoring and control systems, fire detection and suppression systems, alarms, security systems and any other facilities control systems utilizing microchip, minicomputer, or programmable logic controllers.

2.5.4.10 Cost Estimate

1. Prepare detailed cost estimate. Indicate quantities, unit prices, labor and material costs.
2. Estimates shall be based on accurate quantity take-off and current unit prices.
3. If a Construction Administrator (hired by DPW) is involved with the project the costs shall be compared and reconciled.

2.5.5. BIDDING PHASE (Reproducible Bid Documents) (100% Complete)

2.5.5.1. General

1. Upon completion and approval of the Contract Documents, the Architect/Engineer shall submit (a) drawings for reproduction. **The cover sheet must be on Mylar for the permanent record of signatures and consultant seals** and (b) the specifications, printed one side on 8 1/2" x 11", 20 pound white bond paper with letter-quality print. Also provide CAD file in the storage medium required by DPW. Refer to "Specification Requirements" Section 3.1 and "Drawing Requirements" Section 3.2 this Manual.

2. The Architect/Engineer and consulting engineers shall seal the drawings and specifications for which they are responsible with their individual professional stamps and signatures; this is mandatory. If the A/E firm is a corporation, also place the corporate seal on the drawings and specifications with the signature of the corporate officer authorized to so sign; this is discretionary. Refer to Sample Cover Sheet, Sample Title Block and Specification Title Page.

3. The contract documents will receive "sign-off" approval by DPW and the user agency if they are satisfied the design fulfills all the requirements. Sign-off by DPW only indicates the documents are a reasonable representation of the design solution that is consistent with the original authorization, and reflect intent as developed by the client agency and DPW. The sign-off does not indicate any technical review and approval of the documents.

4. Forms shall be filled out by the Consultant as directed by the DPW PM for the bid process.

5. The intent of DPW is to have the Contractor hold his bid for 90 days. If at the end of that time a construction contract has not been signed, DPW will ask the Contractor to extend his bid for 60 days. If the contract can not be signed at that time, DPW will cancel the bids for their convenience. (Legislation is in process to effect this change)

2.5.5.2. Fee for Plans and Specifications

A non-refundable fee is required on all Department of Public Works Construction/Renovation Projects for all plans and specifications for Construction Contractors. The Bidding and Contract Department before distributing the bid package must receive the required fee. This pertains to both formal and informal projects. The fee will be based on actual cost incurred for all plans and specifications for that specific job. The fee to be charged will be included in the invitation to bid. The Architect or Engineer for a project will receive a number of copies of the Contract Documents by prior discussion with the DPW Project Manager at no cost.

2.5.5.3. Project Manual

The project manual shall include a list of the contract documents such as Instructions to Bidders and Construction Specifications Bidding Requirements, Contract Forms, and Conditions of the Contract (Division 0) and the Technical Specifications (Division 1 through Division 33).

General Conditions of the Contract for Construction (Division 0)

Refer to the DPW PM for a copy of the "General Conditions of the Contract for Construction, Department of Public Works – State of Connecticut". Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract. This information shall be provided by DPW at the Tracing and Master stage (documents set for bidding) however the Division 0 documents may be provided to the Consultant for coordination of his work, prior to bidding.

General Requirements (Division 1 through Division 33)

Refer to the DPW PM for a copy of the "General Requirements of the Contract for Construction, Department of Public Works – State of Connecticut". This work shall modify the generic divisions as required by the job and coordinated with DPW and the Agency by the Consultant. DPW has a short version and a long version of General Requirements, depending on the size of a project.

ADDENDUM

If changes are required to the documents after the project has been advertised then an Addendum is required, a formal change to the bid documents. The format of this addendum must follow the DPW standard format. Consult with the Project Manager to conform to the standard DPW format.

2.5.5.4. Objective Criteria Established for Evaluating Qualifications of Bidders

1. Within the Connecticut General Statutes Sections 4b-92 and4b-94 the Commissioner has the right to select the lowest responsible bidder for consideration.

2. Each project has its own list of criteria established by the DPW, Design Consultant and Agency. This criteria can be found within the Bidding Requirements of the Project Manual Section 00040.

3. Any protests to the bidding process must file a formal bid protest form, "Petition of Alleged Violations(s) of Part II Chapter 60 of Connecticut General Statutes – Bidding and Contracts". This form with instructions will be available on the DPW web site (www.ct.gov/dpw, click on forms, look under Alphabetical listing) or contact the DPW Project Manager.

2.5.5.5 CONSTRUCTION SCOPE REVIEW

1. Prior to signing of the construction contract the general contractor along with its major sub-contractors will attend a scope review meeting. The meeting will include a verification that all major and important aspects of the design have been included in the low bid. This review will be hosted by the DPW ACT, PM and the A/E.

2. Since the State of CT is not allowed to negotiate as part of its contracting process using low bid, all and any discrepancy discovered must be performed within the low bid price accepted by the State.

3. If provisions discovered by this review create a problem for the general contractor, that legal entity can withdraw their bid and chose to not sign the contract.

2.5.6 CONSTRUCTION PHASE

2.5.6.1 Contract Start-Up

1. Contract Signing and Start Date, meeting held at DPW.
2. Start Date Meeting will probably occur on the same.
3. Pre-start job meeting is held on site prior to the official start date
4. Project Officially Starts [letter by PM] (Daily Diaries start)
5. Schedule of Values reviewed and approved converted to monthly requisition
6. Project Schedule reviewed and approved
7. Job Meetings (weekly or as required)
8. RFI Issues and Process
9. Subcontractors that are not named, GC to submit to PM for review and approval prior to them starting.
10. Testing Services – requirements developed = Submit DPW form #702 "Testing Services Request" initially for required testing list of inspection and overall Testing budget. (See Section 2.4.5 this manual)
11. Shop drawings, submittals, equals and substitutions

2.5.6.2 Actual Field Work Starts (Inspections, testing and progress reports start)

1. Construction site delineation
2. Review of FM Global of Shop Drawings for Sprinkler/Fire Protection Systems (See Section 01300 in construction contract).
3. Field Offices and Storage Areas
4. Engineering Layout
5. Work Progresses per schedule
6. Change Orders and Field Files
7. Submit "Testing Services Request" DPW form #702 as testing is specifically required (See section 2.4.5 this manual).

2.5.6.3 Commission Building Systems

2.5.6.4 Punch List

2.5.6.5 As-Builts (submitted by General Contractor) Record Documents (by Architect)

During construction the contractor shall "mark-up" a set of prints to show as-built conditions and deliver the set to the DPW-Construction Administrator (DPW-CA) at the completion of construction. The DPW-CA will transmit the marked-up prints to the Architect/Engineer. The A/E will then update the original documents to show the actual as built conditions as noted by the contractor. The A/E will deliver the updated record documents on Mylar to the DPW-CA for review and, if considered an accurate record of the site and building conditions forward the Mylar to the DPW Project Manager. Once the Mylar and CAD disks, including all the addenda, modifications etc., are received by the DPW-Project Manager final payment for the construction administration phase may be authorized. Refer also to Division 1 General Requirements "Contract Closeout", Section 01700, paragraph 1.5 for As-built Document Submittals.

2.5.6.6 System Demonstration and Training

1. Operations and maintenance manuals delivered to agency
2. Scheduled demonstration and training session with agency facility personal

2.5.6.7 Substantial Completion

1. Diaries end
2. "Substantial Completion form" (DPW form #781) issued
3. "Certificate of Compliance form" (DPW form #715 or SBI form) issued
4. Architect's Final Inspection List (punch list)

2.5.6.8 Certificate of Acceptance

1. Warranties and guaranties take effect upon issue
2. "Certificate of Acceptance" (DPW form #782) form issued = any punch list items must be listed.

2.5.6.9 Closeout

1. Submission of final payment with releases and including Insurance Certificates = all punch list items must be complete.
2. Final Accounting Statement
3. Architect's Final Inspection List (punch list is complete)
4. Consent of Surety to Final Payment
5. As-Built drawings complete
6. Contractors evaluation completed
7. A/E Evaluation Completed
8. ~~"Certificate of Final Acceptance" Issued~~

2.5.6.10 Warranty Inspection (one month prior to building warranty/guarantee has expired)

3.1 SPECIFICATION INFORMATION

3.1.1 GENERAL INFORMATION

1. In addition to the standard DPW page shown within this Manual (refer to "Unit Prices" Section 3.3) the following requirements shall be adhered to.
   a. Only 8 ½" x 11" 20 lb. White bond paper. (Printed on one side only, for Masters)
   b. In upper right page header: Section number, section name, number of pages per each section.
   c. On lower left footer: revision of DPW provided spec section.
   d. On lower right footer: DPW project number. (example: BI-RT-839)

2. At the schematic phase, an outline specification is required as a minimum. This must include a Table of contents, a delineation of the products to be used, including a brief description of each, and the proper CSC five digit section number. Refer also to "Schematic Design Phase Checklist" Section 2.5.2 this manual.

3. The Design Development phase will require, as a minimum, a Table of Contents, the start of development of the page format for all Division 1 sections. It should not be limited to the inclusion of typical sections but shall include major headings for materials and systems Refer also to "Design Development Phase Checklist" Section 2.5.3 this manual.

4. The Contract Documents phase required a complete specification. It shall include a Table of Contents, all Division 1 sections (modified as necessary) all Technical Sections, unit prices (if necessary) and supplementary bids (if necessary). The Division 0 sections will be provided by DPW and should not be provided by the Consultant.

5. The use of the State version of the CSI format is mandatory.

6. If a product is identified in the specification by brand name and manufacturer, three such products and their manufacturer must be named.

7. For single source specifications (must have written DPW approval) refer to "Single Source Specifications" Section 2.4.5 for approval process in this Manual.

8. List of specification items available in electronic format (or future web access):
   a. "General Requirements" (Division 1) – available in both a short version (for smaller projects) and a long version (for large projects). The long version has each section as a separate document.
   b. "Contract forms and Conditions of the Contract" (Division 0) – is available to the Consultant for coordination information, however the DPW Bidding and Contract section will insert this information in the Contract Documents just prior to bidding.
   c. "Elevator Agreement" Section 14245 – a sign off agreement by the Contractor that shall be included in the bid documents that any diagnostic device for the elevators installed or repaired shall not have an expiration date and shall be turned over to the State of Connecticut.
   d. Sample Table of Contents
   e. "Subsurface Investigation Reports" (Information Document #2) – for introduction to any subsurface reports.

Additional information about the specification format may be obtained by contacting the Chief Architect at the Department of Public Works. Telephone (860) 713-5630.

3.2 DRAWING INFORMATION

3.2.1 GENERAL INFORMATION

1. Final drawings for all projects shall be one of the following sizes: 11" x 17", 24" x 36" or 30" x 42". The dimensions refer to the outside edge or cut line. Use only one sheet size for each project. Any requirement to modify these dimensions must be addressed early in the project and be approved by the DPW-Project Manager and the DPW-Supervising Project Manager.

2. Drawings of each submission phase should conform to the above standard sizes. Certain topographical plans, plot surveys and engineering projects that include large areas may require larger sheet sizes. The Department of Public Works must approve all exceptions.

3. Tracings shall be of printable quality as judged by the DPW. Refer to "Bidding" Section 2.5.5 of this Manual.

4. Half-Size Drawings for Construction: DPW may require the drawings to be reduced to 1/2 scale for bidding and construction purposes on major projects. Original drawings (Tracings) will be full size. DPW will obtain the half-size drawings for bid and construction phases. Half size drawings will be authorized by DPW.

5. Drafting Standards shall be as follows:
   a. Graphic scales, as established by DPW on each sheet or detail.
   b. Minimum pen line thickness of O or .35mm and the lead pencil equivalent.
   c. Minimum lettering height of 1/8".
   d. Do not Poche or apply film to the back of the tracing.
   e. Minimum scale: 1/8"=1'-0" for architectural. Refer also to "Boundary and Topographical Survey Requirements" Section 2.3.6.

6. The DPW title sheet in CADD format is available to the A/E, on request.

7. List of items available on diskette (or future web access):
   a. DPW Cover Sheet (for seals and approval signatures)
   b. Sample Title Block (for typical drawings)
   c. General Requirements (Division 1) – available in both a short version (for smaller projects) and a long version (for large projects). The long version has each section as a separate document.
   d. Bidding Requirements, Contract forms and Conditions of the Contract (Division 0) – this is available to the Consultant for coordination information, however the DPW Bidding and Contract section will insert this information in the Contract Documents.

8. Refer also to "Bidding Phase" Section 2.5.5 of this Manual.

9. As-built (record drawings) as per the A/E contract – will be provide as Mylars and in electronic files.

3.2.2 CADD Standards

1. All drawings at the Tracing and Master (T&M) phase prepared for DPW projects must be submitted on 3 1/2", 1.44 MB Diskettes or CDs in addition to the conventional Mylar originals. The US National CAD Standards will be utilized.

2. Software used to produce CADD drawings should be compatible with AutoCAD, Release 12 or latest release.

3. The contents of each diskette/CD will be identified on labels securely attached to each diskette/CD cover, not the diskette/CD sleeve.

4. CADD drawing numbers: The title block on each drawing shall contain the project number and sheet number.

5. After completion of construction, all revision changes, additions, as-built conditions and any other comments pertinent to the project must be included on the CADD diskettes/CD before the final payment is approved.

6. DPW recommends use of the AIA short or long layering guidelines as a standard layering format.

7. DPW recommends that font selection be limited to those supplied with the basic AutoCAD software package. Alternate fonts must be approved by the DPW. If an alternate font is used the font file must be supplied along with the project files.

8. As-built (record drawings) as per the A/E contract – electronic copies shall be submitted to DPW at the completion of the construction project.

Additional information about the drawing format may be obtained by contacting the Chief Architect at the Department of Public Works. Telephone (860) 713-5630.

3.3 UNIT PRICES

The following unit prices are included in the Contract and will be used to calculate the value of additions to or deductions from the work called for in the contract document referenced Section(s) of the Specifications. If actual quantities differ from the quantities given in the base bid quantity number, the greater or lesser quantities will be multiplied by the applicable unit price and used to adjust the contract sum. The owner reserves the right to increase or decrease any or all of the quantities as may be necessary to properly complete the project.

The "A/E Bid Data Statement" (DPW form) must be filled out by the Architect summarizing any supplemental bids, cash allowances, special unit prices, the construction cost estimate (broken down by division summary) and the Unit Prices

The Unit Prices indicated below are in the "Contract Considerations" Division 1 Section 01019. This shall be modified to accommodate the project.

1. Unit Price - Alterations:

A.	ALTERATION ITEMS		UNIT	$ ADD	$ DEDUCT
	a.	Roof Blocking			
	b.	Roof Planking			
	c.	Flashing			
	d.	Roof Sheathing			
	e.	Roof Flashing			
	f.	Structural Deck			
	g.	Roof Drain Assemblies			

2. Unit prices shall be negotiated if there is a change in scope of work.

A sample of information for unit prices per the "A/E Bid Data Statement" form- a form the A/E must fill out prior to sending the Tracing & Masters to the bid room

4. UNIT PRICES (MISCELLANEOUS): **(Section 01019).** ☐ **Not Applicable**

Division	Section	Base Bid Quantity	Unit	Add	Deduct
6	**06100/1.02B**	**860**	**Square ft**	**$ 1.95**	**$ 1.75**
6	**06100/1.02C**	**800**	**Linear ft**	**$ 1.50**	**$ 1.35**
				$	**$**

The next page is a sample of the possible information that is required in the Technical Specifications that name the base bid quantity of possible unit prices required. Without extensive demolition of decking during the design process, – unit pricing would allow cost effective flexibility of unknown areas that could be discovered during construction. Check with the Project Manager for any additional guidance necessary.

PART 1 GENERAL

1.01 WORK INCLUDED

A. Framing, blocking roofers, wood plates and rough hardware including fasteners.

1.02 UNIT PRICES

A. Unit prices for certain work of this Section are listed on a page in the General Documents that precede the technical specifications. The General Contractor and Project Manager will verify the actual quantity used.

B. The base bid shall include the replacement of 860 square feet of roof deck which shall match the existing.

C. The base bid shall include the replacement of 800 linear feet of wood plates which shall match the existing.

PART 2 PRODUCTS

2.01 LUMBER

A. Pressure treated #1 Common Southern Pine or #1 Construction Douglas Fir permitted. All limber designated pressure treated on the drawings shall be pressure treated and shall conform to AWPA (American Wood Preservers Association) standard C2 (above ground). The presence of AWPA quality mark L-2 shall be accepted as evidence of conformance to this specification for .25#/CF of preservative.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. Replace existing, deteriorated wood decking, rafters and wood plates as directed or determined by the Project Manager Use hot dip galvanized fasteners only.

END OF SECTION

3.4 SINGLE SOURCE SPECIFICATIONS

3.4.1 GENERAL

The Department reviews specifications by consultants and prepares others as part of its in-house design work. In many cases, a client Agency will ask for a specific product because of favorable previous experience or for the sake of uniformity of appearance or service. Consultants too, will occasionally state that a given product is the only one worth specifying for several different and compelling reasons. There are, of course, many exceptions and variations to the above. And there are good reasons why the Department should consider the exclusive use of a given product.

3.4.2 ADJUDICATING SINGLE SOURCE SPECIFICATIONS

Below is a review of an existing procedure for adjudicating single source specifications and what exceptions may or may not apply.

1. An Agency may ask the A/E Consultant to specify a particular product for the reasons given above. The A/E, however, is obligated by departmental procedure to either specify a minimum of three, reasonably equal products or use a performance specification that does not include a manufacturer's name. If the Agency insists on a restricted specification, it may (or shall) make written request to the Chairman Single Source Committee, Department of Public Works, Room 463, 165 Capitol Avenue, Hartford, CT. 06106. The Chairman is part of a three-person committee and the sole entity that can give permission for a sole source specification. The DPW Chief Architect and Chief Engineer or their delegate is also on the committee. It is the DPW team representative's responsibility to be sure that the request to the Single Source Committee is fully supported by the reason for it and its cost, but not his responsibility to create or prepare the document. A poorly supported request will fail and waste time and money.

2. Of course, exceptions exist. Permission has been granted for single source for several products. A request for one of these products or a similar one may be granted in the interests of time or convenience. But it cannot be assumed that permission is automatically granted. While various industries have established acceptable standards, they should be reviewed and studied by the Single Source Committee.

3. In smaller, add-on projects, it is accepted practice to use the same brand of builders hardware and keying system as the existing. In large, add-on projects this practice is, however, cloudy. Locking mechanisms (cylinders) are interchangeable within practically all brands of lock assemblies. This suggests that lock assemblies for a large add-on project could be competitively bid while the cylinders would be restricted to the same brand as the existing. The simple logic of this scheme is thwarted by the industry practice of one manufacturer honoring another's installation and not offering a bid where the other manufacturer's product is already in use. This practice, as far as can be determined, is not formalized in writing.

4. Another exception to multi-source bidding is found in smaller, add-on or renovation projects where only a few items such as doors, windows, furniture and casework are needed. In these cases, there is usually a close relationship between new and old and simple logic demands uniformity of appearance among other things. It is recommended that if any item in a project of the subject type does not cost more than $10,000.00, it be permitted on a proprietary basis.

3.4.3 SPECIFYING SPECIFIC OR PROPRIETARY PRODUCTS

1. Products of the three part Technical Specifications, name not less than three (3) manufacturers for each product. Do not use " or approved equal".